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Has Prohibition Improved the Public Health?*

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I KNOW of no subject which in recent years has lent itself to more acrimonious and futile debate than the effect which the prohibition legislation has had on public welfare. On the one hand, there are those who trace virtually every favorable condition now prevailing in our country, including our unprecedented prosperity, to this enactment. On the other, writers and speakers equally sincere, utterly condemn the amendment and the enabling legislation because of its alleged corrupting and withering influence on the nation. They insist that we are becoming a nation of liars and of petty lawbreakers; that the flood of bad liquor is undermining the morals and health of our youth; and that these evils will grow with the passage of time unless we face about and change materially the letter and spirit of the enforcement law.

It is not my wish to add anything of a controversial character to this debate. I shall try rather to present a few new facts which are now available after a rather painstaking study which bear on the state of the public health during the recent years. I shall attempt to relate these facts to the prohibition situation, but this will not be an easy task. The time that has elapsed is short, the records are often defective, and the results confusing. Nevertheless, if we can keep our discussion free of bias, we may be able to throw light on the relationship between the new legislation and the public welfare.

DEATH RATE AS INDEX OF PUBLIC HEALTH

The best available index of the public health in the United States is the death rate. Reliable figures on the amount of sickness are almost altogether lacking. Two sets of mortality data are available. The first

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covers the general population residing in a large area of the country, known as the U. S. Death Registration Area as constituted in 1900. These are the 6 New England States, New York, New Jersey, Michigan and Indiana. Together, these 10 states contain 26.1 per cent of the total population of the country. Records of mortality have been kept with great accuracy in this area for the entire period since 1900. These states, moreover, are fairly representative of the country as a whole. While their people live chiefly in urban industrial areas, they have also a fair proportion of rural residents, namely, 25.0 per cent. The second group is composed of millions of men, women and children, who are insured in the Metropolitan Life Insurance Company and whose mortality experience it has been possible to follow very closely since 1911. They live in the cities and towns of the United States and Canada almost entirely. But, fortunately, they form so large a proportion of the communities in which they live that the very accurate figures we have on their life and health will do much to supplement the information that is available from the more limited public sources.

To observe the effect of the prohibition amendment, it is necessary to divide the period covered by the data 1900 to 1926 into two parts, namely, that prior to the adoption of the amendment and the period subsequent thereto. The year 1920 saw the establishment of national prohibition. That year would, therefore, seem to be the dividing line. Practically, it would be better to consider the earlier period as running from 1900 to 1917 inclusive, because the last three years, 1918, 1919 and 1920 were severely disturbed by the prevalence of the influenza pandemic, which distorted the mortality picture and gave an utterly false twist to the trend of mortality during the previous two decades. We shall, therefore, contrast the trends of population mortality in the two periods, that from 1900 to 1917, inclusive, with that from 1921 to 1926, inclusive.

The upper part of Chart I shows what has happened to the death rate in the general population of the original registration states. There was an improvement in mortality in the first 18 years, as is clearly indicated by the sharp downward inclination of the trend line. This is the heavy straight line running diagonally across the chart from 16 per 1,000 on the left in 1900 to a point a little over 14 per 1,000 on the right in 1917. It is the straight line which best shows the tendency of the death rate during the period when the actual death rates varied widely from year to year as is shown by the lighter jagged line. The average death rate in this pre-prohibition era was 15.15 per 1,000 per annum, and the decline over the entire period was 0.10 deaths per 1,000 of population per annum. The second, or what may be broadly called the

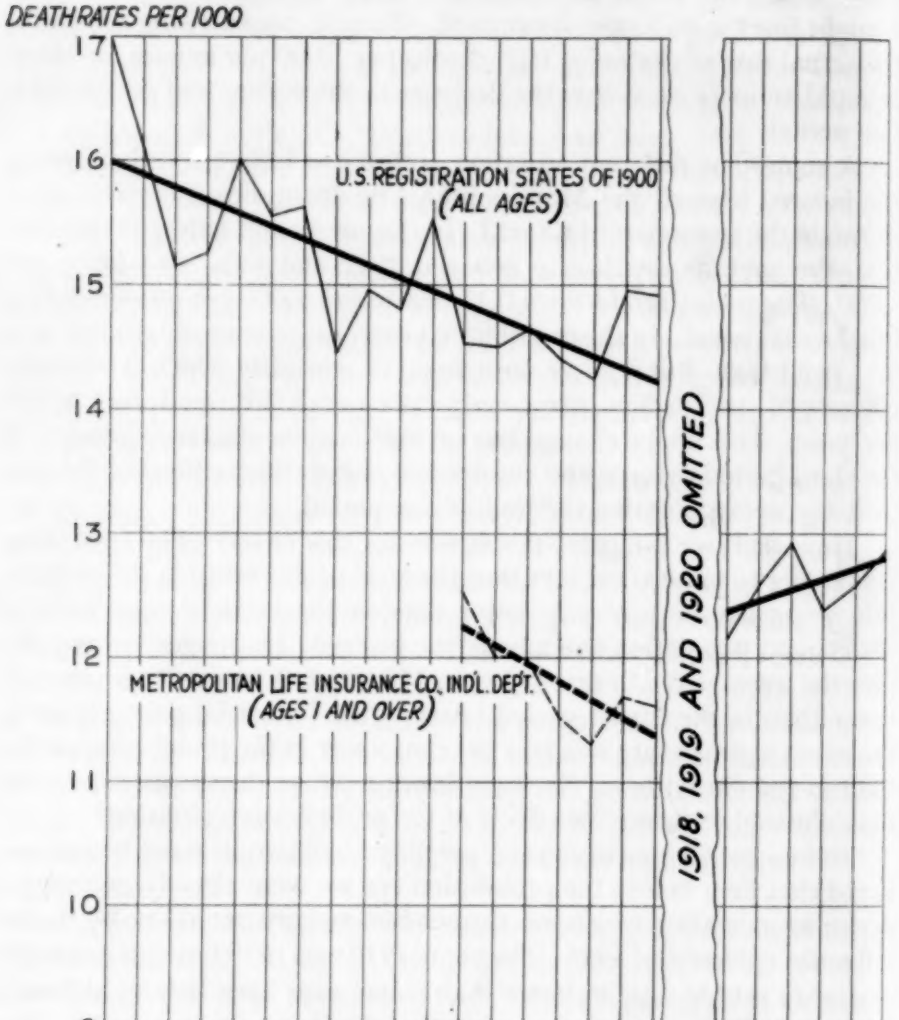
prohibition period, from 1921 to 1926, inclusive, presents a different picture. The mortality is on a much lower level than in the earlier years. The 6-year average death rate was 12.58 per 1,000; but, on the other hand, the trend of mortality (again indicated by the heavy straight line) is no longer downward. There is now a rising tendency, the actual rate of rise being 0.09 deaths per 1,000 per annum, or about as rapid an increase as was the decrease in the earlier and pre-prohibition period.

A somewhat different situation appears to have prevailed among the insured lives of the Metropolitan Life Insurance Company, as is shown in the lower part of Chart I. In this urban and industrial population, the average death rate between 1911 and 1917 was 11.81 per 1,000. The mortality declined 0.15 deaths per 1,000 per annum during this 7-year period. In the prohibition years, the average death rate was 8.71 per 1,000. But now we see a trend of mortality which is virtually unchanged, the decline being only 0.01 per 1,000, or 1 in 100,000 per year. This slight change has no significance whatever in view of the short period covered and the marked annual fluctuations of the rate from the average during the prohibition period.

How shall we interpret the figures on this chart? The first thing that comes to mind is the fact that the level of mortality in the prohibition years has been clearly lower than in the earlier years, both in the general population and among the insured. In the general population the average death rate between 1921 and 1926 was 16.9 per cent lower than in the earlier period. Among the industrial policy holders, the average death rate was 26.2 per cent lower in the prohibition period than in the earlier one. Do these lower average death rates, as some have claimed, measure the effects of the prohibition legislation?

Before such a conclusion can possibly be drawn, it must be remembered that long before the prohibition era we were already enjoying a declining mortality, which was thrown temporarily out of line by the influenza epidemic of 1918. The years 1919 and 1920 brought down the mortality rate to a point lower than it had ever been before, although both years had serious influenza outbreaks in the early months. The condition since 1921 appears to be merely a continuation of the downward tendency of mortality during pre-prohibition years, but with its acceleration retarded among the insured and entirely lost in the general population. And it is noteworthy that during these same years, the death rate in most European countries declined appreciably. Such improvement was not limited to those engaged in the World War but affected the countries of Europe almost without exception. The years since 1920 have been generally years of good and improving mortality.

CHART I—TREND OF MORTALITY, ALL CAUSES OF DEATH, 1900–1926, IN THE U. S. REGISTRATION STATES OF 1900; AND 1911–1926, METROPOLITAN LIFE INSURANCE COMPANY, INDUSTRIAL DEPARTMENT



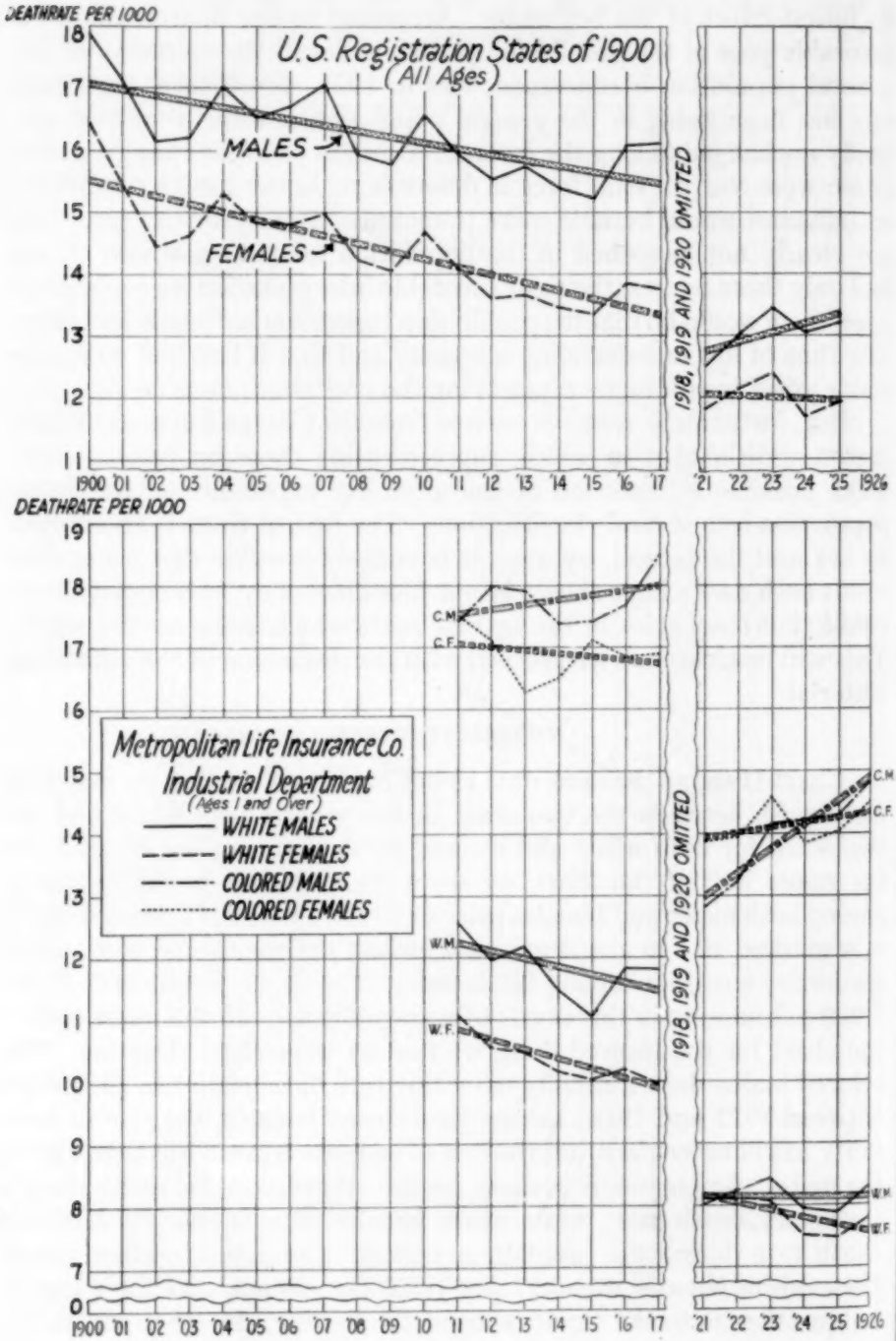
The effect of such a movement as prohibition on the death rate would be expected to become cumulative. It would certainly not show its fullest effect at the beginning. According to our figures, the most favorable year of the prohibition period, so far as the mortality of the general population is concerned, was in 1921. Since then, the death rate has been rising in the general population and has remained virtually unchanged among the insured. It might be argued that if prohibition were really a vital force in determining better health conditions, its influence would become more pronounced from year to year. This has clearly not happened in the population taken as a whole. If we had only these figures, the most favorable interpretation we could place upon them would be that the prohibition legislation had come into effect at a time of low and declining mortality and that it had had no appreciable effect in still further improving the mortality of our people.

But, fortunately, we have secured from the Census Bureau at Washington additional data which, supplementing those on insured lives, make possible a dissection of the mortality experience of the entire population into several classifications. The first of these is an analysis by sex and the second, by age. It is entirely possible that a negative result such as we have shown in our first chart may be a composite of conflicting tendencies in the several parts which make up the whole. This will be clearer as we proceed with the discussion of the additional material.

MORTALITY BY SEX

Chart II shows the same data as in Chart I, except that we may now distinguish between the two sexes in the general population and the two sexes for both white and colored persons among the insured. In the upper half of the chart, we see a sharp decline in the mortality among both males and females prior to 1917. From 1921 onward, there is a marked rise in the death rate among the males and a virtually stationary condition among the females. The slight decline of 0.03 per 1,000 per annum, in this sex, is of no significance. In the lower half of the chart for the insured lives, we find an interesting situation. The colored males show a rapidly mounting rate of mortality in the period between 1921 and 1926; among the colored females, the rate of mortality has likewise risen, but the rate of increase is much less than among the males. Among white persons, on the other hand, the males show a stationary death rate; while white females show a sharply declining death rate during the prohibition period. The actual decline among these white females was 0.12 per 1,000 per annum, and there can be no question as to the significance of the decline. In other words, the improvement in mortality during the period between 1921 and 1926,

CHART II—TREND OF MORTALITY, BY SEX, 1900–1925, U. S. REGISTRATION STATES OF 1900; AND BY SEX AND COLOR, 1911–1926, METROPOLITAN LIFE INSURANCE COMPANY, INDUSTRIAL DEPARTMENT.



which was shown in Chart I, was entirely limited to the group of white females. In the light of what we saw happen in the general population, we may safely conclude that there has been a different tendency in the mortality of males and of females during the prohibition years and that there has been a real improvement among white females.

MORTALITY BY AGE

Continuing our argument, we may now examine the mortality situation in the several age groups of the general population and among the insured. The facts are clearly shown in Charts III and IV. The first of these reflects the conditions in the general population of the registration states; the upper half presenting the facts for males, the lower half for females. Concentrating attention on the period 1921 to 1925, inclusive, we find that among males the death rate declined very sharply among children under age 5 and less sharply in the age periods 5 to 9 and 10 to 14. The facts are shown in the upper left hand panel. The age period 15 to 19 already shows a stationary condition in the mortality during the prohibition period and this continues until age 35, after which, each one of the age periods shows a rapidly increasing mortality during recent years. In the female sex, as shown in the lower half of the chart, the situation is slightly different. The declines are unmistakable in the early years of life and continue up to age 35. It is only after age 35 that the mortality decline among females is either retarded or is actually converted into a rising tendency.

Among the insured of the Metropolitan Life Insurance Company, virtually the same situation appears, as is indicated on Chart IV. The facts for white males are shown in the upper half of the chart; those for white females in the lower half. The decline among males from 1921 to 1926 is very sharp at the ages 1 to 4. It is less marked but significant in the age periods 5 to 9, 10 to 14, and 15 to 19. The age period 20 to 24 shows a slight decline. The period 25 to 34 shows no change. From age 35 onward, the death rates show a rising tendency during these prohibition years, and this becomes very marked at the advanced ages. Among the females, the declines are just as sharp in the early periods, that is, up to age 20. But unlike the males, the declines continue during the age periods 20 to 24 and 25 to 34. The rates remain virtually unchanged in the age period 35 to 44. The years 45 to 54 show an insignificant rising tendency and only the age period 55 to 64 shows a rise in the death rate.

We have, therefore, for the first time succeeded in converting a flat and negative composite into a rather interesting series of tendencies in the several component groups of the population, which may help us to

CHART III—TREND OF MORTALITY, 1900–1925, BY SEX AND AGE IN THE U. S. REGISTRATION STATES OF 1900.

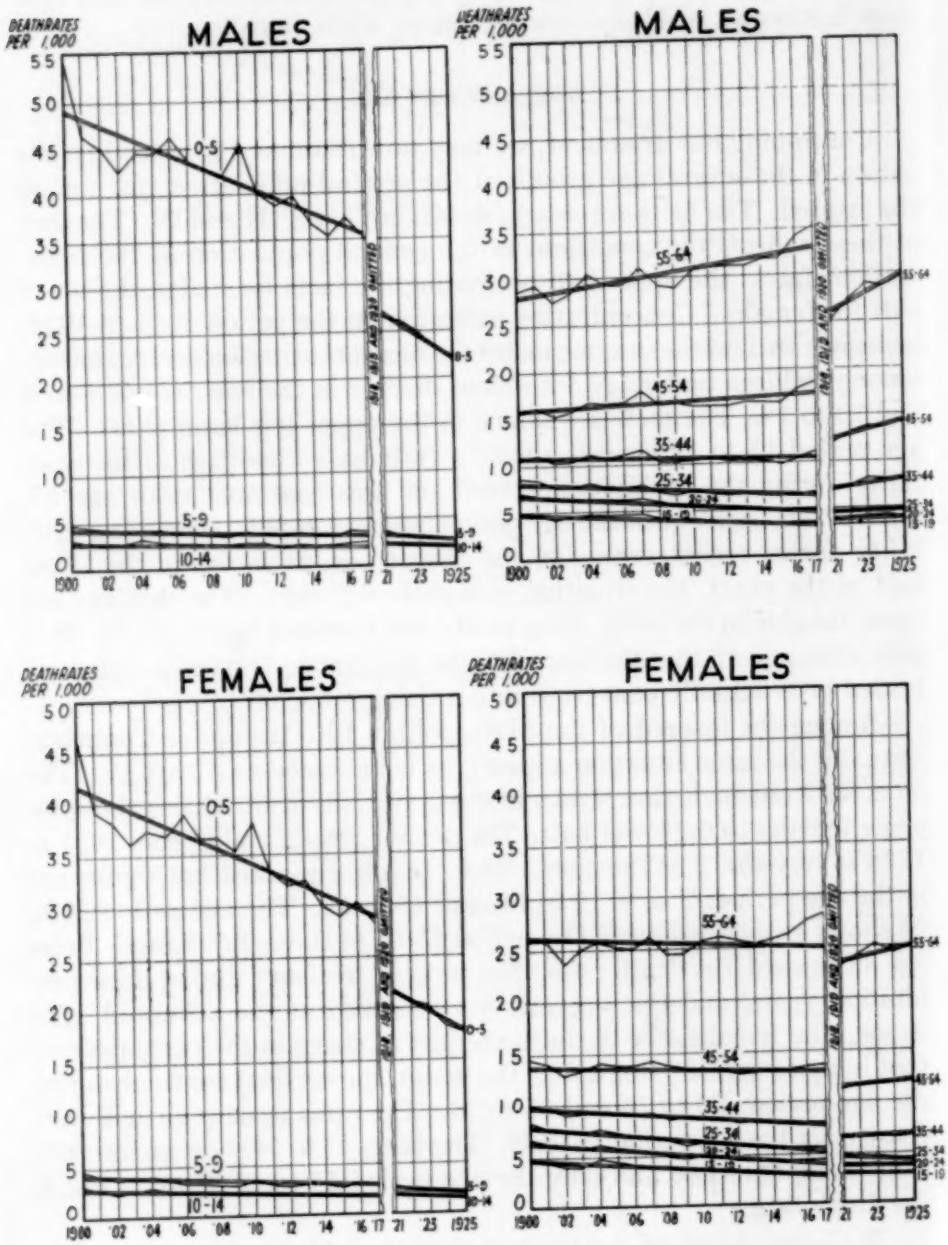
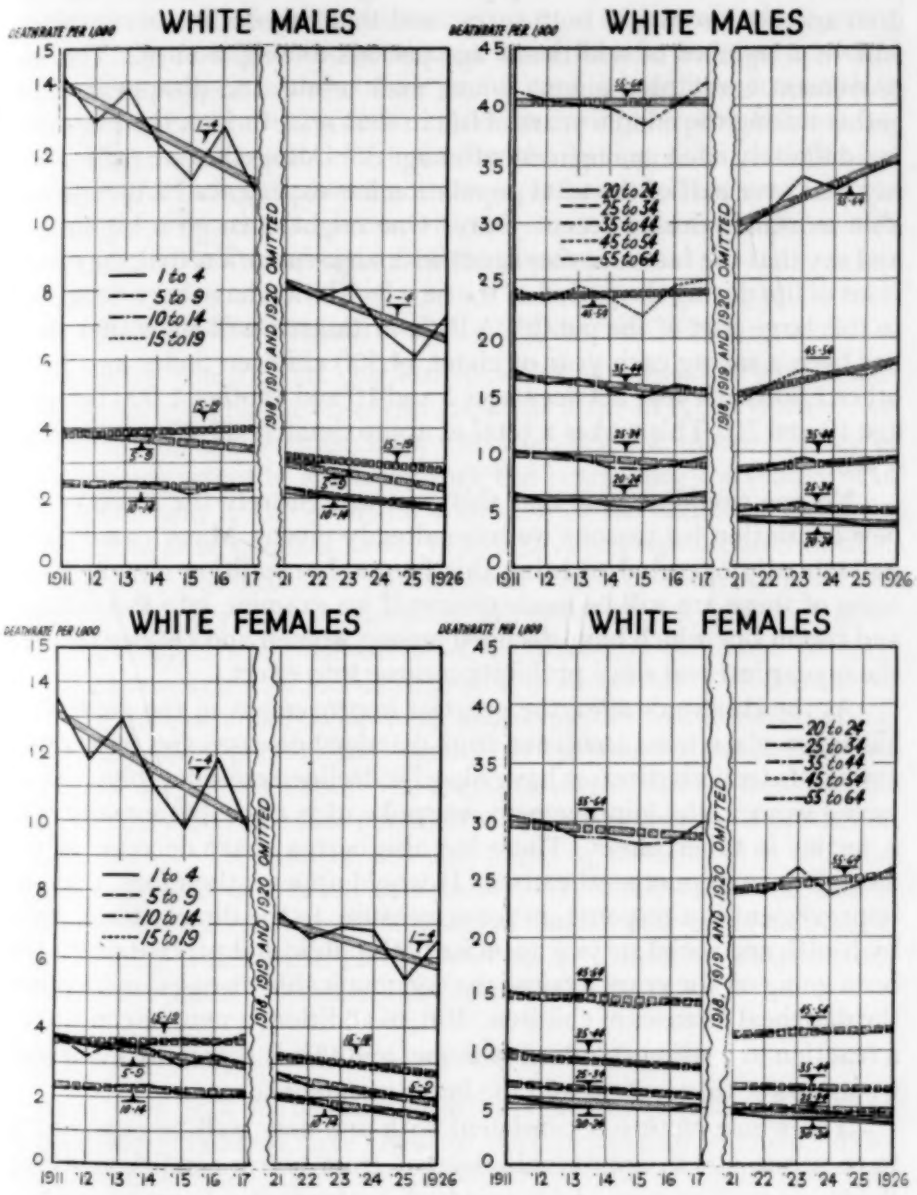


CHART IV—TREND OF MORTALITY, 1911–1926, WHITE PERSONS, BY SEX AND AGE, METROPOLITAN LIFE INSURANCE COMPANY, INDUSTRIAL DEPARTMENT.



answer the question we have for discussion. For one thing, there is now much more agreement in the results of this two-sided investigation. We may summarize our findings as follows: That the prohibition period is characterized by sharply declining mortality rates among children and adolescents of both sexes; and that this decline is characteristic of a number of additional age periods among women. The improvement is retarded among young male adults and disappears altogether during the middle years of life in that sex. In fact, the mortality has definitely risen among men, after age 35. Altogether we may safely say that over half of the total population has experienced a very favorable mortality during recent years. One might even go a bit further and say that the facts are consistent with an assumption that the conditions of life during the period of the new legislation have been beneficial to this large part of the public. A little arithmetic will show that there has been a saving each year of about 14,500 children under age 5, another 2,000 each year between ages 5 and 10 and another 1,000 between age 10 and 20. This makes a total of approximately 17,500 young lives a year.

No one would assume that this gain was entirely the result of the new legislation for reasons we have already given. Many causes have undoubtedly operated to bring this favorable condition about. What some of these are will be made clearer if we examine into the diseases and conditions which have declined among women and children during the 6-year interval since prohibition came into effect.

At the children's ages, the greatest improvement in the death rate has taken place from accidents, from diarrheal diseases and from pneumonia. Infectious diseases have likewise declined considerably. Among young women, the improvement we spoke of is traceable somewhat to a decline in tuberculosis. There has also been a sharp decrease in the mortality from puerperal causes. It would appear, therefore, that the improvement is a response, in some measure, to the direct attack made by health and social service agencies both public and private which has been going on for years against the communicable diseases and against the diarrheal diseases of children. But, in addition, it may be considered a reaction to a rising standard of living, and this is especially evidenced by the lower tuberculosis and the lower pneumonia rates.

The whole picture is consistent with and may well be expected to have arisen (to an appreciable degree) from better conditions within the home, such as more and better food, better medical service and better housing. It is impossible to measure or to say how far any one factor has operated in the direction of reducing mortality. The increased facilities of public health work and the better conditions within the

home have operated together to produce the end result, and it would be entirely unfair to over-emphasize the effect of one of these forces as against the other. In fact, these two activities work best hand in hand and add to each other's effectiveness.

While we may say that the death rate of children and of young women, that is, those who remain at home for the most part, would probably have gone down without prohibition, it would be too much to assume that the conditions within the home during the prohibition years had not been instrumental in furthering the decline. The conditions of domestic life during the last few years have been such as to add incentive and power to the forces already at work to make for better health and longer life in these divisions of the population.

IMPROVEMENT IN ECONOMIC CONDITIONS

Evidence toward this conclusion, which is presented very tentatively, is afforded by the observations of the army of social workers, insurance agents and business men, who from one end of the country to the other are virtually in accord that the years since 1920 have seen an improvement in the economic condition of the homes of the great mass of American people. Never before have savings deposits been so great or have life insurance policies been added to and maintained as during the last 6 years. Retail trade has never experienced such prosperity. All of this emphasizes what is universally observed, namely, that the housewife now has more money to spend on the necessities of the household, on food, on clothing, and on shelter to a degree that has never before been possible for so many. It has been suggested that that part of the wages which under the old régime went into the liquor traffic is now largely diverted into channels which mean increased protection and welfare for the family. But this phase of the subject is unfortunately beclouded with much uncertainty. We know very little that is accurate with reference to the amount of alcohol now being consumed, what is being spent for it, and least of all how the facts shape up for the various economic levels of the population.

RISE IN MALE DEATHS DUE TO ALCOHOLISM

How then does our assumption with regard to women and children tie up with the facts we have given for the condition among men? Why have the death rates for men increased in view of these favorable changes? In that sex, we find that an improvement in tuberculosis has gone hand in hand with an increase in the mortality from pneumonia, from accidents, from heart disease and kidney disease. During this period, there has been a constant rise in the death rate from alcoholism

and from the associated condition of cirrhosis of the liver. Both of these diseases were at a minimum in 1920. They are now at a point almost as high as in the decade prior to prohibition. The picture we have found to exist in the mortality of adult men in the United States is entirely consistent with the observations universally confirmed of a continued widespread indulgence in alcoholic beverages by men. Prohibition has not been particularly effective in that sex and especially has this been true in the cities and, more particularly, in the eastern states.

If the saloon has gone and the great body of men no longer spend a large part of their wages on liquor, it is only too clear that what they do drink now, even if in smaller quantities and at a lesser total cost, is of such a deleterious character, as to result in no advantage to their health. The quality of liquor used throughout the country is sufficiently bad to make up for the smaller quantity consumed. The economic gains help us to understand the condition among women and children; the character of the present supply of liquor helps us to understand the lack of improvement which appears in the mortality of men.

There can be little question as to the unsatisfactory situation now confronting large areas of the country as regards the use of alcohol by men. Beginning with 1920, there has been a continuous and marked rise in the number of deaths resulting from the use of alcohol. In 1920, the death rate from this condition reached its minimum, namely, 1.3 per 100,000. Every year since then, virtually with no exception, has seen a rise and the rate is now more than three times as high as it was only 6 years ago.

The same condition is found to exist among the industrial classes as among those of larger incomes whose insurances are carried in the ordinary departments of the insurance companies. The insurance results are confirmed by the population figures for the several states and this phenomenon is widely observed, larger states showing more strikingly what can be found in the smaller ones with a little more searching. In Maryland, the alcoholism death rate in 1926 was the highest ever recorded since 1911. In Rhode Island, Michigan and New York, the 1926 rate was the highest with a few exceptions.

The records of hospitals for the insane tell a similar story. The year 1920 showed the lowest rate for admissions to hospitals for mental disease due to alcoholism. Since that year, the admission rate has increased step by step and last year saw conditions three times as bad as 6 years ago. It is only too true that in the country over, with very few exceptions, there is a mounting rate from alcoholism and from the associated diseases among the male population.

This situation is in striking contrast with what has occurred in

neighboring Canada. In the Dominion, likewise, several provinces have been experimenting with one form or another of regulatory legislation. But in that country, there is as yet no evidence of any untoward result in the mortality rates for any large group of the population. The experience of the Metropolitan Life Insurance Company in Canada is especially instructive. Among over 1,000,000 policyholders, there have been recorded only 100 deaths from alcoholism and acute alcoholic poisoning during the entire period, 1911 to 1926. On the annual basis, the number of deaths from these causes among Canadian policy holders is so small as to be almost negligible. The death rate from these causes, in fact, is only about a quarter of what it has been among insured lives in the United States. But what is even more interesting is the fact that the deaths from alcoholism have gone down during the last 10 years in Canada—a condition very different from that in the United States. In so far as death rates are a reliable indication, the Canadians seem to have succeeded much better than we in their efforts to control the problem of alcohol and of alcoholism.

DEGENERATIVE DISEASES IN THE UNITED STATES

But there must be no misunderstanding of the true import of these findings. The death rate from alcoholism alone is not high. Deaths from alcoholism and from alcoholic insanity are only a small part of the total. These figures are important not so much on their own account but rather as indications of a condition or habit of life which now prevails. Much more important than the deaths from alcohol are the deaths from the degenerative diseases such as, heart diseases, kidney disease and pneumonia, which are apparently on the rise. Just how far the indulgence in alcohol will explain these increases, it is impossible to say. But, in any case, there is no indication as yet of a tendency toward improvement in these among American men.

EFFECTS OF PROHIBITION NOT UNIFORM

The effect of the prohibition legislation on the public health has clearly not been uniform among the various groups of the American population. This fact probably explains much of the confusion which has existed in the public mind with respect to the influence of prohibition. Many persons have thought of prohibition as if it were a definite and unvarying condition. The facts are very different. Absolute prohibition prevails hardly anywhere and affects as yet only small numbers of people.

We must learn to think of the force of prohibition as varying to a greater or lesser degree with geographical areas, with economic strata

and with the sex and age classes of the population. It is only when considered in this light that we can hope to obtain a consistent answer to our initial question. We may then say that the effect of the prohibition situation on the public health has probably been good where there has been prohibition to an appreciable degree, and the situation has been unsatisfactory to the degree in which there has in fact been no prohibition. Especially is this true in those areas of the country and among those classes of the people where there has been drinking of the highly deleterious stuff that passes for alcoholic beverages these days. Such a conclusion is at once consistent with the facts at our disposal and squares with what has generally been accepted as the true relation existing between heavy alcoholic indulgence and individual health.

This conclusion must not be interpreted, however as an endorsement of the 18th Amendment and of the current enforcement law. This paper is not concerned with the desirability of this type of legislation. Our main purpose has been to discover the facts with regard to the health of our people during recent years. We have disclosed, we believe, certain facts which throw light on the current situation. If it were desired fully to evaluate the prohibition legislation, it would be necessary in addition to these facts on health to consider other items of equal importance in the life of the nation, each one of which would require careful study. The effect of the recent legislation upon public honesty, respect for law and the integrity of public officials, as well as other considerations, will have to be considered with great care. Much time must elapse before these important questions can be considered adequately in the light of the new legislation.

The National Committee for the Prevention of Blindness Annual Meeting

WITH Hon. William Fellowes Morgan, President of the National Committee for the Prevention of Blindness, presiding, the Thirteenth Annual Meeting of the National Committee took place at The Russell Sage Foundation Building, 130 East 22nd Street, New York, N. Y., Thursday, December 15, at 4:30 P. M. Dr. Park Lewis, of Buffalo, Vice-President of the National Committee, and for many years a student of international aspects of saving sight, spoke on: "Prevention of Blindness: A World-wide Problem."

Beginning January 1, 1928, the Committee will be officially known as The National Society for the Prevention of Blindness.

"The Common Cold" Etiology, Prevention and Treatment*

VOLNEY S. CHENEY, M. D., FELLOW A. P. H. A.

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IN ALL industries absenteeism on account of sickness is a serious economic problem. In a recent report of the Boston Edison Company covering a period of 10 years, the absences per year on account of sickness were 8.9 calendar days for males and 14 days for females. Among males, sickness caused 12 times as much absenteeism as accidents and the ratio for females was 171 to 1. Respiratory diseases caused nearly one-half of the total number of days lost by men. Out of every 10 men, 4 lost time during the year on account of "common colds." Out of every 10 women, 7 lost time on account of the same cause. Males lost 1.4 days per year and females 2.1 days per year because of colds. Based upon this average, the economic loss caused by "colds," in wages alone, in all the industries of the United States is several millions of dollars and when we also consider the losses due to decrease in efficiency, decrease in production, and the extra expenditures of the invalid, the total is enormous.

There is no medical subject which has greater interest for civilized mankind than that of the "common cold." My experience of many years among the aborigines of the Southwest convinces me that colds, as we know them, are a product of civilization. The layman uses the term "a cold" to cover a multitude of conditions which even the medical man does not always differentiate; viz, an acute coryza; rhinitis; pharyngitis; laryngitis; bronchitis; la grippe; influenza and sometimes tonsillitis.

RESEARCH WORK MEAGRE

There has been a dearth of research work in the etiology of colds, except in an endeavor to prove the theories that a cold was either a primary infection by one or a group of bacteria, or due to a filtrable virus. This lack of research work must be due to the fact that a cold is ordinarily considered a rather trivial affair and one which does not respond readily to treatment but runs its natural course; it cannot be

* Read before the Industrial Hygiene Section of the American Public Health Association at the Fifty-sixth Annual Meeting at Cincinnati, O., October 19, 1927.

due to the apparent economic unimportance of a cold, for statistics show that about 45 per cent of absenteeism in most of our large industries is caused by colds or their sequelae. Where it does not cause absence from work, it materially affects a person's efficiency and, in that way, effects also a great economic loss.

The accepted definition for "a common cold" has been "an acute infection of the nasal and pharyngeal regions, or of the upper respiratory tract"; but no one has been able to demonstrate that any one of the many bacteria normally inhabiting the nasal, buccal and pharyngeal cavities, is the cause of a cold, nor has it been conclusively proved that a group of bacteria is responsible for the symptoms we call "a cold." The infectious origin of a cold is only an unproven theory, and a theory based upon a false premise because in the early stages of a cold the secretions from the nose are always sterile and the organisms usually regarded as being the causative factor are only *secondary invaders* of the latter stages.

Another theory as to the etiology of colds is that of a filtrable virus as brought forth by Kruse in 1914, but this theory was also definitely demonstrated as being untenable through a series of experiments by Robertson and Graves in 1924.

The *International Medical Digest*, January, 1927, says:

> Summarizing the present knowledge of the bacteriology of common colds, one must say that, as yet, there has not been found any specific organism that can be considered as the etiological factor. The possibility of a filtrable virus as a specific cause for rhinitis is interesting but, up to the present time, the evidence is too conflicting to accept it as a fact.
>
> It soon becomes apparent that for a proper evolution of the causes for colds, one must go further than the study of the bacteria in the upper respiratory tract.

That is just what I have been doing in my study of colds—going beyond the study of the bacteria in the upper air passages and seeking a systemic disturbance of which the syndrome of a cold is only a local manifestation.

I have never been thoroughly satisfied that a cold was only a trivial affair and was primarily an acute infection of the upper respiratory tract. For the past 11 years, I have been making an intensive study of colds, their etiology, their course, both with and without treatment, and the after results or sequelae.

COLD IS NOT INFECTIOUS

The first thing that I want to oppugn is that "a cold is an acute infection." I have been able to disprove this by experiments on a number of people free from cold by trying to inoculate them with the secretions of an individual suffering from an acute cold. As infectious dis-

eases are generally most contagious in the period of incubation or the early stages, I chose the time when the secretions were most profuse for my inoculations. In no single instance was a cold contracted.

If a cold were an acute infection, its origin or source could nearly always be definitely traced; but this is rather a hard thing to do and it is generally turned off with the remark, "I must have been exposed to a cold somewhere." It is true that a cold will frequently run through families and through offices where the clerks are closely associated, but this does not prove that a cold is spread by contact with other persons. These individuals, in the home and in the office, are subjected to the same unhygienic conditions of environment, and those conditions are the factors in bringing about an altered metabolism and a systemic disturbance affecting all the fluids and secretions of the body.

EFFECT OF CLIMATIC CONDITIONS

Climatic conditions have always been held responsible in some way for colds. Inclement weather conditions—of which the chief are severe cold, dampness, windiness, or sudden change of temperature—are frequently considered the exciting or at least a contributory cause of colds. The incidence of colds is generally greatly increased in the winter months and cold weather. Many observers have tried to explain why colds should be more prevalent in cold weather, and the theory most frequently advanced is the disturbing influence of cold upon the heat-governing center, through the autonomic nervous system; but the physiological function of the heat regulating center is to adapt the organism to frequently changing climatic conditions, and in health its regulating function is not easily disturbed.

During the winter months, we lose a part of the actinic effect of the ultra-violet rays of the sun because of its southern declination requiring the rays to pass through a thicker stratum of atmosphere which, especially if smoke-ladened, acts as a filter to the rays and materially decreases their chemical action upon the blood, chiefly influencing its calcium content or calcium fixation.

Climatic variations are a contributing factor only so far as they inhibit our normal activities and decrease our utilization of protein foods which are always in excess of what we normally require. We eat too much and exercise too little in cold weather. Colds are less frequent in warm weather because we eat less of high protein foods and exercise more. A lumber camp in which I spent several years and where the men were exposed to all kinds of weather and sub-zero temperature, was particularly free from colds and respiratory diseases. I do not consider cold, *per se*, as an etiological factor.

The times of the greatest incidence of colds in our industry is on Mondays, days following holidays, and days following banquets or parties where there is an abundance of good things to eat. I have also observed that colds are very prevalent in our traveling salesmen and others who are on the road a great deal. While traveling there is a decided change in daily routine compared to the one maintained while at home, a proneness to overeat, drink too much alcoholic stimulants, an increased mental strain, irregularity of the bowels, lack of proper exercise, and loss of sleep. Fatigue, no matter how it is acquired, is a very important factor, and the reason for this is the altered metabolism of the blood and tissues which it produces.

What are the symptoms of a common cold? They vary with the severity of the attack. In a moderately severe one they are coryza, nasal and pharyngeal irritation, headache, muscle-ache, lassitude, anorexia, and malaise. These are also the symptoms of two widely divergent systemic disturbances, one of which is very prevalent and frequently diagnosed—the other is rather rare.

In a study of several thousand cases of colds extending over a period of 11 years, and after numerous unsuccessful attempts to inoculate cold-free persons with the secretions from acute colds, I am thoroughly convinced that an acute cold affecting the upper respiratory tract is not primarily an infection but only a symptom syndrome of a systemic disturbance.

A number of cases of colds of varying severity were carefully studied in the laboratory. Observation was made as to the degree of acidity of the urine; the CO_2 combining power of the blood as an indicator of the alkaline reserve; tests were also made to determine the calcium content of the blood, the sugar content; non-protein nitrogen and the basal metabolism. The urine invariably carried a higher degree of acidity than the normal—in some cases as high as 80° (normal 35°); the CO_2 combining power of the blood in all cases was low, the highest being 52 per cent; the sugar content of the blood was generally decreased (below 100 mg. per 100 c.c.); the metabolic rate was always on the minus side. (These cases were carefully selected because of their lack of any symptoms of disturbed thyroid activity.)

SUMMARIZING FINDINGS

There is a change in the blood chemistry and, consequently, there must be a change in the tissues supplied by the blood. There is a decrease in the bicarbonates or reserve bases contained in the blood plasma and the tissues, notably in that of the sodium and calcium salts; and an increase in the bicarbonate tolerance as determined by Sellard's

test. There is also a change in the activity of the thyroid gland, manifested by a decrease in the metabolic rate; a slight decrease in the sugar content of the blood with a slight retention of non-protein nitrogen. The secretions of the nose and throat are found to be less alkaline than the normal, sometimes having a decidedly acid reaction to litmus paper.

These findings seem to point the way to the conclusion that a cold is a local manifestation of a systemic disturbance; namely, a disturbance of the alkaline balance or reserve, in other words, a mild acidosis, or perhaps better stated, a lessening of the "buffer" action of the blood plasma through a decrease in its bicarbonate content. This conclusion is strengthened by treatment in which thorough alkalinization will always abort and cure a cold—a radical statement but nevertheless true, provided the treatment is thorough.

INDUCING ACIDOSIS

I have been able to induce all the symptoms of a cold, in varying degree from a simple coryza to that of la grippe and the "flu," by the induction of an artificial acidosis through the administration of ammonium and calcium chlorides. The degree of severity of the symptoms was in direct ratio to the degree of acidosis induced. In the severer degree of acidosis, all the classical symptoms of the "flu" were present, even including a low degree of fever. The symptoms rapidly subsided upon the administration of sodium bicarbonate in large doses by mouth and by rectum.

AN ABORTIVE TREATMENT

If the disease is attacked when there is a beginning dryness in the pharynx or a slight corzya, or congestion of the mucous membrane of the nose, and alkalinization is instituted by large doses of sodium bicarbonate, until the urine is alkaline to litmus paper, a "cold" can always be aborted. Along with the sodium bicarbonate which I generally prescribe in 60 g. doses, accompanied by a large glass of hot water, every 2 hours for 3 doses, I give to an adult 1 g. of calcidin (a calcium and iodine combination) every half hour until 6 doses have been taken.

Most colds begin to manifest themselves late in the afternoon or early evening and the abortive treatment is best given at this time up to retiring. At the time of taking the treatment, the usual meal should be dispensed with, or should consist of milk and some cereal, or soup or broth. If the bowels are constipated, they should not be moved by a cathartic or laxative but the lower bowels should be relieved by a soap suds enema. This treatment will abort colds, if taken in their incipiency.

Where a cold has advanced to the stage where there is a hoarseness and a profuse coryza, or where this condition has advanced to what we generally term "a cold," I use the following treatment:

Initial dose 60 g. of sodium bicarbonate and 1 g. of calcidin, then 30 g. of sodium bicarbonate and 1 g. of calcidin every 2 hours for 6 doses, then 20 g. of sodium bicarbonate with ⅓ g. of calcidin every 3 hours during the waking period until the cold is checked. The administration of the sodium bicarbonate should always be in or followed by a large glass of hot water. Locally, spray the nose and throat with a 1 to 5000 solution of metaphen, or other alkaline solution (1 dram of sodium bicarbonate to one pint of water) morning and night. If the bowels are constipated, I prescribe no laxative or cathartic but use an enema of soap suds to relieve the lower bowels.

Prophylaxis is best maintained by exercise and a diet which is well balanced and thoroughly adapted to the individual's physical activities.

CONCLUSION

Colds and their sequelae including rhinitis, pharyngitis, laryngitis, bronchitis, la grippe, influenza, and pneumonia are not infectious, as we generally consider a disease to be infectious, but are due to a disturbance of the alkaline reserve or balance (acid-base equilibrium). The more severe the degree of disturbance, the more serious the disease.

Conditions capable of producing a mild acidosis or disturbing the "buffer" action of the blood plasma, are contributing factors in producing a cold: a poorly balanced diet, lack of exercise, fatigue, constipation, and infections anywhere in the body. Colds can be prevented by maintaining the alkaline balance through proper diet, exercise, and the careful use of sodium bicarbonate or alkaline waters.

Colds can be aborted by administering sodium bicarbonate in doses large enough to thoroughly alkalinize the system together with small doses of calcidin or iodine and calcium.

Colds can be cured by the administration of the same drugs in smaller and frequently repeated doses.

DISCUSSION

Dr. Wade Wright called attention to Dochez's study of colds in some 40,000 persons. This showed distinct seasonal peaks, the highest late in winter, with the next highest in the fall. These peaks occurred on the Pacific coast the same as in New York City and without relation to temperature changes.

Dr. Emory W. Sink noted that after a football game at Michigan University there were invariably more colds than usual. Was this due to fatigue or to exposure? It has been shown that colds lasted on the average two days longer if cathartics were given. Yet there was something in the psychology of giving medicine of some sort. His general opinion was that there was some contact infection in the production of widespread colds.

Mr. Massey of the Pennsylvania Railroad Company declared that the common

cold was enormously costly to the railroads of the country and that anything that would help in control would be eagerly accepted.

Dr. Robert A. Kehoe considered that with the common cold the most important things were its ubiquity and its sequelae. Certainly the final factor is a germ or organism. It is not proved that some systemic condition precedes the invasion by the organism. Yet what does produce this sudden upset? How do we account for the sudden colds that come out of a clear sky?

Dr. Otto P. Geier was impressed with the frankness and boldness of this paper. He felt that our research investigations in the subject of colds had been getting too far away from the clinical observations; that too much scientific work of this sort is going on—so much as to be indigestible—with the practicing physician left out. The industrial physician has an excellent opportunity for clinical research in the question, and he suggested that others try out Dr. Cheney's methods. He was discouraged with the work of the specialists in the field of the common cold and suggested that industrial physicians discourage the sending of workers afflicted with colds to the specialists. When they do send them the colds usually last two or three days longer. Mondays have always been the worst days for colds, but "blue Monday" is not so bad today as it used to be.

Dr. Alice Hamilton called attention to the experimental work of Mudd and Grant of St. Louis who showed that an actual blanching of the mucous membranes of the nose and tonsils takes place with a chilling of the body. This seemed to be definite proof of primary physical influence.

Dr. A. J. Lanza stated that a prominent industrial physician at a plant employing 10,000 people had tried out argyrol instillations for colds, using controls. He had the patient lie with his head hanging over the end of a table. Argyrol was instilled by the use of a U tube. This plan of treatment was carried out over a long period of observations with generally disappointing results. In fact the patient so treated retained their colds longer than those not so treated.

Dr. Silverman, of Syracuse, did not believe that immunity lay in the question of H-ion equilibrium. The idea of curing colds by disturbing this equilibrium with sodium is too simple. Certainly contact must be recognized as a chief mode of spread and definite causative organisms must be recognized.

Dr. Frank L. Rector stated that certain Australian physicians had noted a sequence in the common cold from the condition of blanching to mucus-excess which exudate produced a favorable culture for the growth of bacteria. Such events supported the common opinion of a predisposed state followed by an invasion of microorganisms.

Dr. Julius Levy, pediatrician, pointed out that practically all diseases in children were associated with an acidosis. This was true for the gamut of epidemic diseases such as pneumonia, measles, etc. This acidemia should be treated by itself and could not be considered the basic cause of colds, but simply a product.

Dr. Cheney, in closing, stated that the whole theory of infection in relation to immunity must be rearranged. He has had very favorable results in treating scarlet fever with large doses of alkalies. The whole question is a big field for the physiological chemist. In some experimental work he had produced typical influenza in 5 cases by administering calcium chloride and ammonium chloride, and had then promptly cured the condition by alkalinization. He did not deny that an invading organism was a later factor in the common cold, but he had found that the blood changes recorded in his paper were all present before infection began.

Figure 1

Artificial Respiration

By the Prone Pressure Method*

1. Lay the patient on his belly, one arm extended directly overhead, the other arm bent at elbow and with the face turned outward and resting on hand or forearm so that the nose and mouth are free for breathing. (Fig. I.)

2. Kneel, straddling the patient's thighs with your knees placed at such a distance from the hip bones as will allow you to assume the position shown. (Fig. I.)

Place the palms of the hands on the small of the back with fingers resting on the ribs, the little finger just touching the lowest rib, with the thumb and fingers in a natural position, and the tips of the fingers just out of sight. (Fig. I.)

3. With arms held straight, swing forward slowly so that the weight of your body is gradually brought to bear upon the patient. The shoulder should be directly over the heel of the hand at the end of the forward swing. (Fig. II.) Do not bend your elbows. This operation should take about 2 seconds.

4. Now immediately swing backward so as to completely remove the pressure. (Fig. III.)

5. After 2 seconds, swing forward again. Thus repeat deliberately 12 to 15 times a minute the double movement of compression and release, a complete respiration in 4 or 5 seconds.

6. Continue artificial respiration without interruption until natural breathing is restored; if necessary, 4 hours or longer, or until a physician declares the patient is dead.

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* The method and pictures have been approved by:

American Telephone & Telegraph Co.
American Red Cross
American Gas Assn.
Bethlehem Steel Co.
National Electric Light Assn.
National Safety Council
Bureau of Medicine & Surgery, Navy Dept.
Office of the Surgeon General, War Dept.
U. S. Bureau of Mines
U. S. Bureau of Standards
U. S. Public Health Service.

Figure II

Figure III

7. As soon as this artificial respiration has been started and while it is being continued, an assistant should loosen any tight clothing about the patient's neck, chest or waist. *Keep the patient warm.* Do not give any liquids whatever by mouth until the patient is fully conscious.

8. To avoid strain on the heart when the patient revives, he should be kept lying down and not allowed to stand or sit up. If the doctor has not arrived by the time the patient has revived, he should be given some stimulant, such as one teaspoonful of aromatic spirits of ammonia in a small glass of water or a hot drink of coffee or tea, etc. The patient should be kept warm.

9. Resuscitation should be carried on at the nearest possible point to where the patient received his injuries. He should not be moved from this point until he is

breathing normally of his own volition and then moved only in a lying position. Should it be necessary, due to extreme weather condition, etc., to move the patient before he is breathing normally, resuscitation should be carried on during the time that he is being moved.

10. A brief return of natural respiration is not a certain indication for stopping the resuscitation. Not infrequently the patient, after a temporary recovery of respiration, stops breathing again. The patient must be watched and if natural breathing stops, artificial respiration should be resumed at once.

11. In carrying out resuscitation it may be necessary to change the operator. This change must be made without losing the rhythm of respiration. By this procedure no confusion results at the time of change of operator and a regular rhythm is kept up.

Race Betterment Conference

THE Third Race Betterment Conference will be held at Battle Creek, Mich., January 2–6. The object of the conference is to gather the facts of race degeneracy and of recent scientific progress, in the prolongation of human life and to give a greater impetus to the dissemination of these facts for the benefit of humanity. Progress will be reported in the field of bacteriology, medicine, nutrition, eugenics, physiology and education. The conference is being organized under the auspices of Race Betterment Foundation of which John Harvey Kellogg, M.D., is founder and president, and headquarters will be at the Battle Creek Sanitarium. Dr. C. C. Little, president of the University of Michigan is head of the Conference Committee, which also includes Dr. Max Mason, president of the University of Chicago, and Dr. Glenn Frank, president of the University of Wisconsin; Haven Emerson, M.D., Director DeLamar Institute of Public Health, Columbia University.

Among the speakers vill be Herman N. Bundesen, M.D., president of the American Public Health Association; Louis I. Harris, M.D., City Health Commissioner, New York, N. Y.; Frederick L. Hoffman, Consulting Statistician, Prudential Life Insurance Company, Newark, N. J.; E. O. Jordan, chairman Department of Hygiene & Bacteriology, University of Chicago; Guy L. Kiefer, M.D., Michigan State Health Commissioner; A. T. McCormack, M.D., Secretary, Kentucky State Board of Health; Mary Swartz Rose, Ph.D., Professor of Nutrition, Teachers College, Columbia University; William Alfred Sawyer, Medical Director, Eastman Kodak Co., Rochester, N. Y.; William F. Snow, President, National Health Council, New York, N. Y.; John Sundwall, M.D., Professor of Hygiene and Public Health, University of Michigan; Harvey W. Wiley, M.D., Washington, D. C.; and Henry F. Vaughan, City Health Commissioner, Detroit, Mich.

Definition of Stillbirth*

IN 1908 the Vital Statistics Section of the American Public Health Association adopted certain Rules of Statistical Practice. Rule No. 19, adopted at that time is:

No child that shows any evidence of life after birth should be registered as a stillbirth.

In 1913 the Vital Statistics Section adopted the following:

RESOLVED, that the present Rules of Statistical Practice relating to stillbirths and premature births as adopted by the American Public Health Association in 1908, should be strictly followed by American registration offices, it being understood, in Rule No. 19, "No child that shows any evidence of life after birth should be registered as a stillbirth," that the words "any evidence of life" shall include action of heart, breathing, movement of voluntary muscle.

So far as is known to the members of this committee, American statistical offices have been strictly observing this rule as amended by the resolution, except that the Province of Quebec has determined the fact of life after birth solely by the act of breathing.

The Health Section of the League of Nations has proposed the following definition of stillbirth, which has been referred to this committee:

A dead-birth is a birth of a foetus after twenty-eight weeks pregnancy in which pulmonary respiration does not occur; such a foetus may die either: (a) before, (b) during, or (c) after birth, but before it has breathed.

The Netherlands and the British Governments have refused to accept it, on legal and scientific grounds.

The proposed definition contains two very distinct propositions. Let us consider these two propositions separately:

First. The desirability of establishing a minimum period of utero-gestation.

Second. That breathing shall be the only acceptable evidence of life to distinguish a live birth from a dead birth.

PERIOD OF UTERO-GESTATION

The very glaring lack of uniformity in stillbirth statistics is found in the period of utero-gestation required as a minimum. In the United States this varies from the requirements of the State of Maryland (all products of conception), to that found on the Statute of the State of Washington (advanced beyond the 7th month of utero-gestation). Many of the state laws, however, have followed the recommendations

* Report of the Committee to Consider the Proper Definition of "Stillbirth," presented to the Vital Statistics Section of the American Public Health Association at the Fifty-sixth Annual Meeting at Cincinnati, O., October 17, 1927.

of the Model Law and call for stillbirth reports if the foetus has advanced to the 5th month of utero-gestation.

League Statement—The communication from the Health Organization of the League of Nations, dated April 1, 1925, on page 2 states:

(c) Viability.—In proposing that a gestation of not less than seven months (twenty-eight weeks) shall be the term of development required for a "viable" foetus, the Committee has had in mind the very great difficulty of rearing an infant born after a shorter period of gestation. It is hardly too much to say that the survival of an infant born before the end of the twenty-eighth week of pregnancy is an event worthy of special record. It is rare, except when special facilities—e.g.: provision of an incubator—are available. The adoption of the Committee's proposal will not mean that the birth, at an earlier stage of gestation, of a foetus in which pulmonary respiration becomes established is not to be regarded as a "live-birth" (as hereafter defined); but it will mean that a birth before the end of the twenty-eighth week of pregnancy of a foetus in which respiration is not established is not to be counted as a "dead-birth" but as a "miscarriage" (abortion).

Where registration as a dead-birth is required in the case of a shorter gestation than twenty-eight weeks—e.g.: Switzerland (six calendar months), Japan (four months)—the adoption of the Committee's proposal need involve no change in legislation. In such instances, only those births which take place after the twenty-eighth week of gestation should be included in the principal (international) tabulation. Supplementary tabulations for national purposes could be given, showing the number of births occurring after gestations shorter than twenty-eight weeks.

Now, an examination of medical literature reveals many cases where a child born from the 18th to the 28th week has survived, even for years, and Taylor in *Principles and Practice of Medical Jurisprudence*, March, 1905, Vol. II, page 49, says:

Viability—According to the English law, it is not necessary that a child, when born, should be capable of living, or viable, in order that it should take its civil rights. Thus, it may be born at an early period of gestation; it may be immature and not likely to survive; or again, it may be born at the full period of gestation, but it may be obviously labouring under some defective organization, or some mortal disease, which must necessarily cause its death within a short time after its birth.

Fortunately, these points are of no importance in relation to the right of inheritance: an English medical jurist has only to prove that there was some well-marked physiological sign of life after birth ("Live Birth"); whether the child were mature or immature, diseased or healthy, are matters which do not at all enter into the investigation. It may at first sight appear to be inconsistent with justice that a child which is born immature or labouring under disease, owing to which it can not long survive its birth, should possess the same rights of inheritance as one which is born mature and perfectly healthy; but this evil to society is of far less magnitude than the adoption of a system which must constantly lead to subtle casuistical distinctions, and thereby create error and confusion. So long as there is no well-defined line between a child which is considered capable of living and one which is not, gross injustice must necessarily be inflicted by any rule of law similar to that which is admitted in the French Code.

Without going further into the medico-legal aspects of the question, it is very evident that the French Code differs from the English Code

and that probably the best thing for our section to do is to keep out of the fight and to allow the jurists to thresh out the legal tangle regarding viability.

Census Bureau correspondence shows that 20 years ago, in 1907, careful consideration was given to this subject by Dr. Cressy L. Wilbur. Please note that Rule 16 of the Rules of Statistical Practice was adopted by this section the following year, 1908. This rule 16 reads:

Statement of viability or nonviability of an infant prematurely born shall not be considered in classification.

In view of the existing Rule of Statistical Practice and in view of existing evidence and medico-legal opinions, there seems to be no sufficient reason for urging that the question of viability be considered in the definition of either "dead birth" or "live birth." Moreover, if live births occur before 28 weeks of utero-gestation, it would be unwise to urge that stillbirths before that period need not be reported, for not only is the relationship between live births and stillbirths of each period of utero-gestation a matter of increasing interest and importance, but the lack of necessity of reporting stillbirths before 28 weeks of utero-gestation would make infanticide of premature infants easy to conceal.

The time of quickening is usually given as the 18th week, and the 18th week begins on the 120th day. There is one case of record where a child born in the 18th week was alive at the age of 9 years. As all of these facts center about the 120th day, it seems the logical thing to do to maintain the wording in the Model Law that a stillbirth need not be reported unless it has advanced to the 5th month (i.e., until after 120 days).

The conclusions of your committee are therefore:

1. That Rule of Statistical Practice No. 16 should be reaffirmed.
2. That inasmuch as every live birth, of any period of utero-gestation, should be reported, every stillbirth which has advanced to the 5th month (after 120 days of utero-gestation) should be reported, and that states should carefully consider asking for reports for still earlier periods, as Maryland does today.
3. That the principle implied in the quoted paragraphs of the communication from the League of Nations be endorsed where it suggests that tabulations of stillbirths for international comparisons be made in the various countries for comparable periods of utero-gestation.

The second portion of the proposed definition of stillbirth offered by the League of Nations relates to the evidence of life after birth. It is based upon the hypothesis that the product of conception is a foetus until it breathes. In the propaganda accompanying this definition of stillbirth the accepted definition of birth is unchanged, and it is admitted that a child's heart may beat for some time after birth without efforts at breathing.

This portion of the definition must be considered from the three standpoints of statistics, science and law.

I. STATISTICAL ASPECT

Gross Statistics—If the proposed change would have any effect in modifying vital statistics in general it must be seen in the increased number of stillbirths recorded, and making a corresponding reduction in the living birth record, and the birth rate. It would also decrease the record of infant deaths and infant death rate. Because the number of infant deaths is less than that of births, proportionally the reduction will be greater in deaths than in births. Since infant mortality is computed according to the number of living births, the final result would be a seeming reduction of infant mortality. Manifestly, except where the number of births is very small, this apparent reduction of the infant mortality rate would be exceedingly small. Similarly, except where the population is very small, the reduction in general mortality rate would be infinitesimal.

Because the total number of stillbirths is only a fraction of the total number of births, the most apparent statistical change occasioned by such an alteration of rule would be in the increase of the stillbirth rate. Practically, the results of such an alteration of rule would be negligible, because heartbeat or movement of voluntary muscle is seldom observed when no efforts at breathing have been found.

Confusion and Lack of Exactness—If "breathing" alone, irrespective of degree, is to be the determining factor as to live or dead births, individual interpretation of the expression by physicians and others will create a variation in reports. This is illustrated by two actual examples. In one case the child lived 30 minutes, according to the record, and the physician reported: "This child only breathed four times after it was born. I think it got some of the amniotic fluid into its lungs and choked to death." In another case the record showed that the child lived 2 minutes. "Respiration was feeble." Strictly, these cases should both be reported as live births, but under the proposed evidence of *breathing only*, would not physicians feel justified in reporting them as stillbirths? Did these children breathe, or did they only attempt to breathe?

Changes to be Expected in Birth Rates, Death Rates, and Infant Mortality Rates if the League of Nation's Definition of Dead Birth were Adopted in the United States—In the Boston Lying-in Hospital in 1926 there were 1,741 live births; 11 of these infants died within 30 minutes. Of these 11, 4 breathed and 7 did not, i.e., 63 per cent of those who died within 30 minutes did not breathe. These figures indicate that 0.4 per cent of children born alive do not breathe and that the League of

Nations' definition would lower the birth rate 0.4 per cent. Now, of deaths under 1 year about 4 per cent are deaths under 30 minutes and 63 per cent of 4 per cent is about 2.5 per cent; so that an estimate may be made that the League of Nations' definition would lower the infant mortality rate 2.5 per cent. Similar calculations indicate that this same definition would lower the general death rate 0.3 per cent.

These small changes in the birth and death rates are not impressive when we know that errors from 5 to 10 per cent due to defective registration are not uncommon.

The corrective factors indicated are so small that we may conclude that the birth, death, and infant mortality rates of the various countries will be reasonably comparable even though there be no uniform definition of the word *dead born*. As a matter of fact the corrective mortality factors already indicated for the new definition are probably three times larger than they should be, for, to queries sent out by the Census Bureau, satisfactory replies were received from physicians regarding 538 children who died within the first 30 minutes of life, and of this number 433 breathed and 105 did not; i.e., only 20 per cent of those who died within 30 minutes did not breathe.

From the broader standpoint of vital statistics, therefore, the proposed change does not appear to be necessary to make our statistics harmonize with those of countries working under the proposed rule.

II. SCIENTIFIC ASPECT

Neither is the proposed change in definition clearly indicated by present scientific knowledge.

Definitions and Evidence—The term stillbirth or dead birth has universally been recognized as meaning dead at the moment of birth. Death means absence of life. As generally recognized, the status of foetus terminates with birth, provided that the organism is alive at time of birth.

Life of an animal is shown by heart-beat, respiration or movement of voluntary muscles. This is general, and it applies to adults as well as to new-born children.

The report of the Committee of the Royal Statistical Society on stillbirth makes no reference to breathing, but gives as the sole evidence "whose heart has ceased to perform its functions before the whole of the body of such child has been completely extruded from the body of the mother."

The definition offered at the meeting of the International Institute of Statistics in 1913 also makes no mention of breathing, but is based upon "absence of pulsations in the cord, and absence of heart sounds or impulses."

It is chiefly heart-beat upon which physicians today depend for determination of fact of intra-uterine life. Why should it be ignored as evidence of life after the child has been born?

It is well known that it occasionally happens that the heart of a new-born infant may beat for a considerable time after its birth without any efforts at respiration. This is admitted in the communication from the Health Section of the League of Nations. Sometimes in such cases, even after the lapse of 20 or 30 minutes, the child begins to breathe and life is prolonged, and it is recognized as a live birth. The change in the definition of stillbirth proposed by the League of Nations to be perfect must therefore include also a change in the universally accepted definitions of "foetus" and "life." According to this proposal the evidence of life in the new-born would differ from the well recognized evidence of life in adults. Changes in definition are only permitted in science when discovered facts clearly necessitate such alterations.

Confusion—Law looks to science for guidance in such matters. It would be unfortunate for legal purposes if the fact of life could not be determined at the moment of birth, but had to be postponed until artificial respiration had been attempted and its results determined. The League definition seems to be based upon presumptions which have not been scientifically proved; namely, that heart-beat is not a sign of life, or that a child is not really born until it breathes.

If, because it does not breathe, a child is to be pronounced dead at birth although the heart beats for half an hour after birth, what shall be said of a similar child in which respiration is finally established? Was this latter child also born dead, and was it "raised from the dead"?

Foetus, or Foetal Character?—Before it is born the child is not an independent organism, because it depends entirely upon the maternal body for nutrition and the elimination of waste products. In this stage its lungs are collapsed, and most of its blood passes directly from the right to the left side of the heart through the foramen ovale, and it has no teeth. Normally the air cells of the lungs begin to be expanded immediately after the child is born, and circulation through the funis, by which it was formerly coördinated with the mother is stopped. Eight or 10 days after birth the foramen ovale becomes closed.

The change from "*foetus*" to "child" is immediate, at birth. This is a point of time clearly marked by nature. The change from the foetal condition to that of an individual is gradual. It normally takes 8 days after the birth in its grosser aspects, and years in the final changes. Abnormally any of these changes may be delayed.

Efforts at Breathing, or Expansion of Lungs?—For proper function as an individual it is necessary that enough of the air cells in the lungs

shall expand to satisfactorily aerate the child's blood. Often this does not occur. By the partial operation of the cells of the lungs life may be prolonged a short time, but the child may die 1 or 2 weeks after its birth from the atelectasis which has been present from time of birth, and from a cause operating before or during birth. It is not the fact of breathing, but *a full use of the lungs* which in that regard marks the transition from the foetal character to that of a child. A patent foramen ovale is a "foetal character," even when found in an adult. The very real distinction between *foetus* and *foetal-character* has apparently been entirely overlooked by the proponents of the League definition.

Inconsistent and Conflicting—The Health Section of the League of Nations asks that the organism be called a "foetus" until it breathes. Then by the League definitions it is to be called a "child," but the birth of that child must be recorded as of the time during which by the same definition it was a "foetus." These two requirements are inconsistent and conflicting, and if the expansion of the lungs is imperfect the proposed definition substitutes an imperfect datum for one which is exact. Is the child with marked atelectasis essentially any less foetal than before its feeble respiration began?

Science and Law—Although law looks to science for guidance when scientific points are involved, it may ignore illogical, uncertain and unproven statements. It is very important that the scientific and legal definitions shall be harmonious. It is the moral duty of this Association to promote this harmony. It would be unfortunate if the Association should place itself on record as supporting scientific ideas which the courts would not accept.

Scientific Conclusions—Science is a systematized and classified knowledge of facts. The proposed change in the definition of stillbirth does not appear to be based upon such an orderly classification of known facts. It seems to be based upon misty theory, contrary to established concepts. It is therefore unscientific.

III. LEGAL ASPECT

Vital Statistics Depend on Law—Statistics of birth, stillbirth and death are based upon records of these facts. These records are received in the form of legal certificates. These certificates are required by statutory enactment. The common use of the individual certificates is for legal purposes. Vital statistics, therefore, stands on a legal base and should be in harmony with the law of the land. Although the time for determination of fact of stillbirth or live birth may not be of preëminent importance either statistically or scientifically, the legal definition is sometimes very important. Such cases have consequently been ap-

pealed to the high courts, and there decided by old established rules. These common law decisions stand as law, except where modified by statutory enactment.

Evidence Acquired by Law?—Swinburne's Treatise on Wills,* first published in 1590, was the leading recognized authority for over two hundred years in England. Even to the present day it is the basis of Anglican legal decisions relative to live or dead births. In that book it is written: "Crying is not an only proof of life, since it may be proved by motion, breathing, and *such like*." It will be remembered that Judge Swinburne died before Harvey's work on the circulation of the blood was published, but the clause "such like" covers heart-beat.

With the knowledge of circulation of the blood, the English Courts have admitted heart-beat as evidence of live birth, and American decisions have followed those in England. Title to property and other legal rights may depend upon the decision whether or not a dead child was born alive. The legal registration should therefore be in accord with the legal definition.

Legal Interpretation—Every statute must be interpreted according to the facts known and recognized at the time the statute was enacted. Our present statutes in all the states were enacted when the legal determination of fact of live birth might be made upon the observation of heart function alone. The American Public Health Association has no power to change the laws of the several states. While it is well for leaders in various special lines to call attention to scientific advances, and to the need for statutory changes when such alterations are evident, the proposed change in the definition of stillbirth if adopted by the American Public Health Association could not be legally operative until embodied in statutory law by special enactment, and the necessity for such enactment is not evident. The conclusions of the committee were:

Because the change in definition of stillbirth proposed by the Health Section of the League of Nations so far as relates to evidence is not clearly needed for statistical purposes; and

Because it is not in accord with the recognized facts of science; and

Because it is neither in harmony with Common Law, nor present statutes,

Your committee recommends that the definition offered by the League be not accepted and that the present rules of statistical practice regarding this subject be reaffirmed.

HENRY B. HEMENWAY, *Chairman*
WILLIAM H. DAVIS CHARLES V. CHAPIN

* Swinburne, Henry. A briefe treatise of testaments and last willes very profitable to be understood of all the subjects of this Realme of England, etc. Printed by J. Windet, London, 1590.

The Relation of Public Health and Clinical Laboratories*

THOMAS G. HULL, PH.D., FELLOW A. P. H. A.

Chief Bacteriologist, Illinois Department of Public Health, Springfield, Ill.

A SURVEY of laboratory work was recently made in the State of Illinois covering the calendar year 1926. Questionnaires were sent to 192 laboratories and 13 public health laboratories. Replies were received from 78, or 40 per cent, which was a good response for the first call without a follow-up reminder.

In Table I, is listed the amount of work actually reported and the estimated total if all laboratories had reported. This estimate is conservative because some of the largest laboratories, as well as the small ones, failed to make returns. The survey omitted the federal institutions, such as the U. S. Army at Ft. Sheridan, the U. S. Navy at Great Lakes, the U. S. Veterans Bureau at Maywood; state institutions such as the Psychopathic Institute, the State University, and the various state hospitals and penal institutions; county institutions such as county hospitals and sanatoriums. A large amount of the work performed by the above institutions is clinical in character although many public health problems are confronted. At any rate, these institutions cannot be considered competitors of private laboratories and hence can be omitted from this study.

TABLE I

LABORATORY EXAMINATIONS MADE BY CLINICAL AND PUBLIC HEALTH LABORATORIES IN ILLINOIS IN 1926

	Examinations reported in survey	Total Estimated
Clinical Laboratories	619,793	1,735,888
Clinical work	513,301	1,301,200
Public health work	106,492	434,688
Public Health Laboratories	388,993	388,993
Total	1,008,786	2,124,781
Wassermann tests		
Clinical laboratories	45,803	139,829
Public Health Laboratories	88,203	88,203
	134,006	228,032

* Read before the Laboratory Section of the American Public Health Association at the Fifty-sixth Annual Meeting at Cincinnati, O., October 18, 1927.

"Public health laboratory" work includes here the communicable diseases, milk, water, sewage and oyster examinations. "Clinical laboratory" work includes blood counts, urine examinations, blood chemistry, gastric contents and the like, which is of personal concern to the patient but not the public, whether done in private or hospital laboratories.

In 1926 there were 2,124,881 laboratory examinations estimated to have been done in Illinois by public health and private laboratories.

COMMENT

Recently a letter was circulated among clinical pathologists with the following statement: "The state laboratory has been one of the most important problems confronting the clinical pathologist and vitally affecting his economic status." The writer, who represents one of the national scientific societies, goes on to criticise "the gratuitous treatment of the mass of our population who would consider it an insult to receive coal and provisions free and yet take laboratory state aid as a matter of course."

It is only natural that there should be certain antagonisms at times between clinical and public health laboratories. They have grown up side by side in the last few decades.

Thus in Chicago Dr. W. A. Evans, with others, founded the Columbus Laboratories, in 1894, in an effort to teach physicians the new science of laboratory work so that the physicians could carry out the procedures in their own offices. The next year the Chicago Health Department founded its laboratory.

The figures presented in this survey do not indicate that public health laboratories are a great factor in competition with the private laboratories. After there has been deducted from the 18 per cent of total examinations performed by public health laboratories the specimens from the poor and from penal and charitable institutions, along with the specimens from private physicians which would not otherwise be examined, the work left would not greatly enrich the clinical pathologists.

One of the chief causes for complaint has been the Wassermann test. Although syphilis forms one of the most serious problems with which our health departments have to deal, no constructive program has been offered by those individuals who would like to do more Wassermanns. They are at present making the majority of the tests and it is doubtful they would get a very much added increase if the public health laboratories ceased to do them.

This brings us to another factor. The development of laboratory work in a community is the result of agitation and stimulation. Thus there was a sharp increase in the number of sputum examinations following the campaign against tuberculosis beginning in the early nineteen hundreds. A similar increase in Wassermann tests began with the work of the Interdepartmental Social Hygiene Board in 1917. There are many communities now without laboratory service because the people and the physicians there have not been taught the value of laboratory aids. Public health laboratories can be of tremendous service in such instances in agitating and educating, thus enabling private laboratories to get a start or to do more and better work. This is a proper function of a health department in improving the health of the people.

CONCLUSION

It may be stated that the private laboratories have small cause for complaint against competition from the public health laboratories, since the latter make but a small percentage of laboratory examinations, many of which would not otherwise be made at all. On the other hand, the public health laboratories can be of service to the clinical laboratories in the promotion of laboratory work among physicians and populace in a manner that the private laboratories cannot undertake. The public health laboratories should coöperate to the fullest extent with the clinical laboratories, since the latter do more work of a public health nature than do the public health laboratories themselves.

Budapest Congress for Industrial Accidents and Occupational Diseases

THE United States will be represented by prominent sanitarians at the 5th International Medical Congress for Industrial Accidents and Occupational Diseases to be held at Budapest during September, 1928. Emery R. Hayhurst, M.D., is chairman of the National Committee of the United States which consists of Volney S. Cheney, M. D., Chicago, Ill.; R. W. Corwin, M.D., Pueblo, Colo.; Eugene L. Fisk, M.D., New York, N. Y.; Otto P. Geier, M.D., Cincinnati, O.; Leonard Greenburg, Ph.D., New Haven, Conn.; George M. Kober, M.D., Washington, D. C.; W. J. McConnell, M.D., Philadelphia, Pa.; Lloyd Noland, M.D., Birmingham, Ala.; Francis D. Patterson, Philadelphia, Pa.; George M. Price, M.D., New York, N. Y.; Frank L. Rector, M.D., Chicago, Ill.; Wm. A. Sawyer, M.D., Rochester, N. Y.; Henry F. Smyth, M.D., Philadelphia, Pa.; and C.-E. A. Winslow, Dr.P.H., New Haven, Conn.

American sanitarians, physicians and dentists are invited to contribute to the program. Those interested in making contributions are asked to communicate with Emery R. Hayhurst, M.D., Hamilton Hall, Ohio State University, Columbus, O.

Chicago's Tuberculin Testing Program*

HERMAN N. BUNDESEN, M.D., Sc.D., FELLOW A. P. H. A.

Former Commissioner of Health, Chicago, Ill.

AND

H. C. BECKER, M.D.V.

Department of Health, Chicago, Ill.

THE most important, as well as the most prevalent, disease of animals with which health officials have to deal is bovine tuberculosis.

Great strides have been made in the field of the sanitary production of milk and in safeguarding of market milk throughout the United States; yet it must be admitted that but slow progress has been made in eliminating tuberculosis from dairy herds. In the past two years, however, Chicago has advanced rapidly in the latter respect. It is the purpose of this article to review the methods and show the results obtained in her comprehensive campaign to protect the milk supply against bovine tuberculosis. For better understanding of the subject a brief review of the history of tuberculin testing in Illinois will be given.

The first legislative attempt to procure milk from non-tuberculous dairy herds for the City of Chicago was made in the year 1908, when a city ordinance was passed requiring the tuberculin test of cattle furnishing milk to be consumed in the raw state.

This step met with most strenuous opposition from dairymen and unscrupulous cattle dealers, arising principally in the most heavily infected dairy districts of Illinois. Through the efforts and influence of this group of interests a bill, known as the "Shurtleff Act," was passed by the Illinois State Legislature in 1911, which prohibited any city, town or village in the state of Illinois from enforcing the tuberculin test to safeguard the milk supply. This led to the passage of Chicago's first pasteurization ordinance in 1911.

Traffic in diseased cattle in northern Illinois had been engaged in for many years, and it developed still further under the influence of the Shurtleff law, coupled with the fact that neighboring states were requiring the tuberculin testing of cattle. Finally, in 1914, so many diseased cattle were being shipped out of Illinois into the other states

* Read before the American Public Health Association at a special session on Milk, at the Fifty-sixth Annual Meeting at Cincinnati, O., October 20, 1927.

that the federal government placed a quarantine against five of the heaviest milk producing counties of the state. This quarantine prohibited the shipment of cattle either in or out of the five counties unless accompanied by a tuberculin test certificate, issued by a federal inspector.

In 1915, Illinois passed a law which prohibited the entrance of cattle into the state unless accompanied by a tuberculin test certificate. With the passage of this legislation the federal quarantine was released. It is common knowledge, however, that the passage of this law was not entirely effective in preventing the smuggling of diseased cattle into Illinois.

OCCASION FOR TEST

Sane and sound methods of eradicating bovine tuberculosis, which included indemnity for losses sustained by herd owners, have for several years been provided by the federal and state governments.

In certain localities of the Chicago district such aid was not accepted by the dairymen, who apparently expected to rely indefinitely upon pasteurization for making safe what was otherwise an unmarketable product.

Realizing that tuberculosis in herds was on the increase in the largest milk producing counties and that the situation was gradually becoming more acute, an investigation of bovine tuberculosis in relation to the milk supply was made by the State Department of Health.

During the years 1923, 1924 and 1925, Tonney, White and Danforth examined in the Bureau of Laboratories and Research, 329 samples of raw milk to determine the incidence of the tubercle bacillus in this product.

Of the total number of samples examined from all sources, 3.5 per cent were found to contain virulent bovine tubercle bacilli. Of the samples collected from one of the largest milk producing counties, 6.8 per cent proved to be positive.

Three and five-tenths per cent of the total milk supply of Chicago amounts to 43,750 quarts daily, or approximately 15,000,000 quarts a year, which, according to the experimental data, contained living tubercle bacilli.

Examination of the official records of the state and federal authorities showed that the percentage of infection among herds in the counties from which the major part of Chicago's supply was obtained ranged from 25 per cent to as high as 77 per cent. Incidentally, the degree of infection in most counties was proportionate to the amount of milk produced. This statement is not to be construed as meaning that the entire supply was obtained from highly infected herds. On the con-

trary much of it came from herds of more progressive dairymen, both in this territory and at more distant points in which the percentage of infection was very low.

The shortcomings of pasteurization as a sole means of protecting the consumer against bovine tuberculosis was also realized.

Sanitarians are almost unanimous in the opinion that pasteurization is not and never was intended to be a safe corrective for milk from unhealthy cattle, nor a justification for lax and insanitary methods of production of milk. To afford maximum protection to the consumer, milk must be obtained from healthy cattle, produced in a cleanly manner, and pasteurized as an additional safeguard.

With full knowledge of the facts and conditions, as here outlined, the matter was placed before the Advisory Board of the Department of Health, and many of America's outstanding authorities on the subject were also consulted.

That milk, even though pasteurized, should be obtained only from cows free from tuberculosis, and that pasteurization and tuberculin testing of dairy cattle should go forward together was, in substance, the opinion of these eminent scientists.

FUNDAMENTAL FACTS AND PRINCIPLES

Before the inauguration of Chicago's campaign, the following well established facts and principles were accepted after thorough consideration of all phases of the subject:

1. Bovine tuberculosis was prevalent to an alarming extent among the dairy herds supplying Chicago.
2. Living virulent tubercle bacilli were present in the raw milk supply.
3. Bovine tuberculosis is transmissible to the human family through the ingestion of milk containing the bacilli.
4. There occur annually in Chicago many cases of bone and glandular tuberculosis, known to be of the bovine type.
5. The efficacy of commercial pasteurization is dependent largely upon the human element and is not to be relied upon as the sole means of protection against bovine tuberculosis.
6. The economic losses caused by tuberculosis in cattle amount to a stupendous sum annually in the United States and the continued maintenance of diseased herds is economically unsound.
7. The federal and state coöperative plan of eradication is no longer in the experimental stage and has proved successful in eradicating the disease.
8. The foremost authorities of the country maintain that, even though milk may be pasteurized, it should always be obtained from cattle which are free from tuberculosis.

CAMPAIGN LAUNCHED

There seemed to be no rational excuse for permitting such a dangerous and uneconomic condition to continue at the risk of human life.

Accordingly, early in 1925 a campaign to secure milk from tuberculin tested cows was begun. With a view to producing as little disturbance in the industry as possible, the coöperation of the dairymen, city milk distributors and country bankers was conscientiously sought.

Numerous meetings, attended by the producers and their representatives, the city milk dealers and bankers, were held in the Department of Health. The producers pledged their support to the program with the proviso, however, that they be given from 5 to 10 years in which to clean up their herds.

INJUNCTION SERVED

Believing that such an agreement would result in unnecessary delay and perhaps postpone really effective action indefinitely, the Commissioner of Health declared that reasonably prompt action only would be entertained. A certain group of producers then resorted to legal action and, on November 24, 1925, secured in the Circuit Court of Kane County, Ill., an injunction against the Commissioner of Health and 12 milk distributors, restraining them from any further attempt to carry out the program. This effort to intimidate the Department of Health and, in effect, to dictate the kind of milk that Chicago should use, aroused strong sentiment on the part of the public and the press, with the result that, on December 24, 1925, the City Council passed an ordinance, providing that on and after April 1, 1926, all dairy herds supplying milk to the City of Chicago must be free from disease.

The same opposing forces which were responsible for the passage of the Shurtleff law in 1911, again became active. Mass meetings were held throughout the dairy district. Defense funds were raised and every conceivable attempt was made in an endeavor to defeat the enforcement of the new ordinance on April 1. Many contended that its enforcement would force most dairymen into bankruptcy. Others predicted that its enforcement would result in a milk famine in the City of Chicago, and that milk would be advanced in price to 50 cents a quart.

It should not be inferred that all dairymen were opposed to the program. The majority of the producers of the dairy district, as a whole, either were in favor of the movement or did not oppose it. The antis consisted of a relatively small group of misinformed dairymen, cattle dealers and bankers in a few of the badly infected counties. The noise and outcry of this group was out of proportion to its numerical strength. With the Health Department's refusal to relent and its repeated insistance that the ordinance would be strictly enforced on April 1, the distributors exerted active effort to enroll their patrons for the

test and much progress was thus made in a comparatively short time.

ORDINANCE ENFORCED

Beginning April 1, 1926, the ordinance was strictly enforced. It developed that more than an ample supply of milk from approved herds was received and, contrary to prediction, the price of milk to the consumer was not increased.

For the approval of herds, a system was installed whereby every dairyman shipping milk to Chicago is required to have on file in the Department of Health, a certificate issued by the state and federal authorities, as evidence that his herd is under supervision. Much credit is due the various officials in charge of the eradication work for making this possible.

The herd certificates, when submitted for file, are carefully examined and a check is made of the amount of milk produced against the number of cows accounted for on the certificates. The date of the test is also noted, and a record is made indicating when the retest is due. A special file is kept of each dealer, containing the certificates of his patrons. With few exceptions, all of the counties from which Chicago receives its milk and cream supply are either testing under the county area plan, or have county veterinarians who, under the direction of the federal and state officials, conduct the actual testing.

RETESTING HERDS

It was held by many opponents of the measure that, after the first testing, many of the clean cattle with which the herds were replenished would be lost on the first retest. As an evidence of the fallacy of this view, the percentage of infected cattle in the 10 leading dairy counties of the Chicago dairy district on the initial test and the percentage of those reacting on the first retest are presented:

	Initial Test	First Retest
Cattle tested	142,185	55,509
Cattle reacted	57,514	4,244
Per cent. reacted	40.4	7.4

TESTED HERDS PROFITABLE

It was contended that many dairymen would have to go into bankruptcy on having their cattle tested, because of the fact that their herds were so highly infected. Testimony has since been given by many dairymen that they are now producing a larger amount of milk from a smaller number of cows than before they tested and disposed of their reactors, and that their veterinary expense and loss from mortality has been materially reduced.

At 13 large milk plants, located in the Chicago dairy district, statistics have been kept concerning the average daily production of milk per cow, both before and after the test. The figures cover herds comprising 30,000 cattle. For the 12-month period after the test the average daily production per cow is given as 23.2 lbs., as compared with 21.5 lbs. before the test, or an increase of 7.3 per cent. The increase given, covering the 30,000 cattle included in the survey, amounts to 18,360,000 lbs. per year, which, at the average price of $2.50 per cwt. paid for milk, represents a profit of $459,000.00.

PREMIUM PAID FOR HOGS

Attention is also called to the fact that a premium of 10 cents per cwt. is being paid by the packers for hogs coming from modified accredited counties; that is, counties in which the degree of infection among the cattle in the county is less than 0.5 per cent. This movement has been sponsored by the National Live Stock Exchange, which advanced the following information: The amount of $342,972.00 was paid in premiums for hogs at Chicago and markets West during the year 1926, one single county in Iowa having received $23,250.00. The first 8 months of 1927, $341,691.00 was paid, or an amount almost equal to that paid out during the entire year of 1926.

STATE AND FEDERAL PLAN

In the year 1917 the state and federal coöperative plan of tuberculosis eradication was inaugurated. One has but to review the figures in the August, 1927, report of the Bureau Animal Industry, U. S. Department of Agriculture, in support of the belief that under this plan bovine tuberculosis can be eradicated.

According to this report there now are under supervision 1,887,589 herds comprising 18,091,229 cattle; accredited 137,898 herds comprising 1,877,021 cattle.

This report shows 361 modified accredited counties in the United States; that is, counties where the per cent of infection has been reduced to less than 0.5 per cent. According to latest information, however, this has been increased to 410 counties.

That the importance of this work is being recognized throughout the United States is indicated by the increase in financial support it has received, particularly in the past 2 years.

The federal appropriation for the year 1927 is approximately $6,000,000.00, or an increase of $2,500,000.00 over that made in the year 1925 when the Chicago campaign was inaugurated.

The combined states and federal appropriations for the year 1927

are given at $18,500,000.00, or an increase of $5,500,000.00 over the year 1925. This does not include appropriations made by counties for the employment of county veterinarians.

The following is quoted from the President's annual message for the year 1927, when transmitting the budget:

The furnishing of pure milk is of vital importance to the health of the people. Because of its interstate character, it is entirely proper that the federal government share with the states the cost of protecting this great food supply. The amount included in the estimates should permit adequate prosecution of the work of eliminating tuberculous cattle from dairy herds. The results of the work already done warrant the belief that we can confidently expect the complete elimination of this menace to health.

That the movement is receiving popular support is evidenced by information received from many cities which have since put into effect similar legislation. Practically all of the smaller cities surrounding Chicago are now requiring that milk come from tested herds.

While the progress thus far made is considerable, the cleaning up of the fluid market milk, though most important, is but one step in the program of elimination of bovine tuberculosis infection from dairy products. The task will not be completed until all such products are required to be obtained from cattle which are free from tuberculosis.

Larson Directs National Dairy Council

THE new director of the National Dairy Council is C. W. Larson, Ph.D., Chief, Bureau of Dairy Industry, U. S. Department of Agriculture since the Bureau was established in 1924. The appointment was made at the annual meeting of the Council in Chicago, Ill., on December 1.

M. D. Munn was reëlected president. The other officers elected were: E. M. Bailey, President of American Dairy Federation, Pittsburgh, Pa.; and J. A. Walker, Blue Valley Creamery Co., Chicago Ill., Vice Presidents; T. A. Borman, Beatrice Creamery, Chicago, Ill., Treasurer. C. Bechtelheimer, secretary of Iowa Creamery Buttermakers Assn. was named secretary pro-tem.

The National Dairy Council, representing leaders of the dairy industry in all sections of the country, is devoted to educating the public concerning the benefits of milk and its products. In his presidential address, Mr. Munn said:

Production of milk has increased in the last six years 34.7 per cent. This had been made possible by assured demand, which also had made possible more efficient and sanitary methods of dairying. Nearly all of it has been consumed in this country. Per capita consumption of milk increased 28.6 per cent and butter 21.36 per cent from 1920 and 1926, inclusive.

The changing food habits of the American people have brought about the increase in milk consumption. With the population centered in cities, people are using green foods, fruit and dairy products, the protective foods much more prominently in the diet.

The dairy industry is in a favorable position both as to production and as to present demand, but according to dietary scientists the American people should be consuming 45 per cent more dairy products than they are using at the present time, in the interest of national health and from the standpoint of economy of the food budget.

Herman N. Bundesen, M.D., President of the A. P. H. A., was one of the speakers at the annual meeting of the National Dairy Council.

Figure I.—A temporary clinic set up in the gymnasium. Two physicians, one nurse, one x-ray technician and two clerks compose the examining staff. Notice the semi-portable fleuroscope.

The Nation-Wide Campaign for the Early Diagnosis of Tuberculosis

PHILIP P. JACOBS, PH.D., FELLOW A. P. H. A.

Publicity Director, National Tuberculosis Association, New York, N. Y.

TWENTY years of campaigning up and down the length and breadth of the United States in the face of a rapidly declining death rate! Why is it necessary at this time to organize a nation-wide campaign for specific emphasis on early diagnosis of tuberculosis, such as is being planned by the national, state and local tuberculosis associations during March, 1928? Has not tuberculosis decreased to such a point that specific emphasis on this disease is unnecessary? Why not a campaign for health examinations instead of this special emphasis on tuberculosis?

To answer these questions, a certain amount of historical perspective is necessary. When the National Tuberculosis Association began its campaign for hospital provision for the tuberculous, following the Sixth International Congress on Tuberculosis in 1908, two types of institutions were projected: state sanatoria for early and incipient cases of tuberculosis, and hospitals of a local, county, municipal or district character for advanced cases.

Newsholme contended at the International Congress that the hospitalization of the advanced foci of infection had contributed most to the decline of the tuberculosis death rate. His thesis had much to do with the establishment of local and district hospitals. As time went on, however, these local institutions, as well as the state institutions, although legally of a decidedly differing character, were both compelled to admit all classes of cases.

The reasons for this change in practice in the face of the accepted theories of 1908, 1909 and 1910 are clear.

At this time interest in tuberculosis was confined to a handful of specialists; the rank and file of the profession was not well versed in the diagnosis of tuberculosis. Consequently, little discrimination was exercised in sending incipient and far advanced cases to the respective institutions provided for them. This failure to hospitalize the early cases has influenced sanatorium construction, and the "shack" that 25 years ago was designed for early cases exclusively, is now relatively unknown. Even at the present time, as recent studies have shown, less than 20 per cent of patients admitted to tuberculosis sanatoria are in the early stages of the disease. It is obvious that tuberculosis is not, in most instances, being discovered early.

Another evidence of the fact may be seen in the failure of physicians to report tuberculosis to the proper health authorities. As Plunkett has recently pointed out, with very few exceptions the state and local health authorities of this country have on record less than two cases on an average for every annual death. Since Armstrong's studies at Framingham indicated that nine active cases should be reported for every annual death, the records of living active cases will seem to be woefully inadequate. The reason for this incomplete reporting is found in the inability or the unwillingness of physicians to report tuberculosis until it has practically arrived at a fatal termination.

Still another reason for an early diagnosis campaign may be found in the experience of the national, state and local tuberculosis associations for the last ten or twelve years. The emphasis upon the child as a vital consideration in the prevention of tuberculosis, which began about fifteen years ago and has steadily increased in stress, had the inevitable effect on the tuberculosis campaign of broadening its scope and outlook. With tuberculosis conceived of as a childhood infection, developing into actual disease in early adult or middle life due to stress and strain and faulty personal and community hygiene, the campaign to prevent this disease has naturally become a broad public health movement. Thus the activities of many of the local and state tuberculosis associations have been dissipated upon comparative non-essentials in the tubercu-

Figure II.—"Let Your Doctor Decide" is the slogan for the Early Diagnosis Campaign. The diagnosis of tuberculosis demands a skillful examination of the patients with bared chest.

losis movement, such as nutrition classes, vacation camps, sometimes wrongly called health camps, dilettante methods of health teaching both for children and adults, etc.

A year ago a committee of the national, state and local tuberculosis associations met in New York and decided, after some discussion, upon a plan for an annual national campaign of a strictly educational character. Some fifteen different subjects for such campaigns were considered and after careful elimination of one after the other, the early diagnosis of tuberculosis was decided upon for 1928, largely for the reasons herein enumerated. In planning the campaign, the Advisory Committee on Publicity and Publications, which had the matter in charge, wisely conceived of an organization comparable in scope to the well-known Christmas Seal Sales of recent years.

This campaign planned well in advance, has been under preparation for many months. In order to insure a nation-wide effect, rather than a spotty, scattered series of local endeavors, the national association has planned to distribute free to its affiliated associations over $25,000 worth of posters and other forms of printed matter and educational matter, to give each state a nucleus for an educational movement. Additional literature will then be purchased by the states in accordance with their ability and interest. Every state, however, will have a supply

of material with which to work and a generous allotment has been allowed.

Through the courtesy of the Outdoor Advertising Association of America, it is anticipated that billboard space will be made available, ten thousand 24-sheet posters will be provided for that purpose. The design of this 24-sheet poster has been executed by F. G. Cooper, the famous letter artist whose food and thrift posters created so much interest during the war and post-war years. A small poster, designed by Ernest Hamlin Baker and drawn from life, depicts a typical scene of a physician in his office examining a patient. Both in color and technic this poster is said by those who have seen it to be the finest of its kind that has ever been produced. This design will be used as a poster (size 11 x 22 inches and 11 x 14 inches), and also as a central panel in a three-panel window display and as a small posterette (size 2 x 2¾ inches).

Two motion pictures are being prepared for the campaign. The first entitled "Delay is Dangerous" is a one-reel film designed for lay audiences and illustrates the importance of early diagnosis from the patient's point of view. The four danger signs on which particular stress is laid are those depicted on the 24-sheet poster; namely, too easily tired; loss of weight; indigestion and cough that hangs on.

In passing it may be said that all of the medical aspects of the campaign have been carefully passed upon by a special selected committee

Figure III.—Young child... are endangered by prolonged contact with tuberculosis in the home. Between the ages of ten and fourteen, the tracheo-bronchial glands are often found infected. Discovery of this condition, known also as hilum or juvenile tuberculosis, is the first step in preventing the serious adult type of the disease.

of the Board of Directors of the National Tuberculosis Association. This is to insure scientific accuracy of statement.

The film for physicians entitled "The Doctor Decides" is in two reels and is particularly designed to impress upon the physicians the importance and necessity as well as some of the technic of early diagnosis. The National Tuberculosis Association plans to make both of these films available at practically the cost of printing, in order to give them the widest possible distribution.

The organization of the campaign is through the state and local tuberculosis associations. The American Medical Association will give prominence to the campaign by articles and editorials in its journals. Several of the leading life insurance companies will actively coöperate.

Talks before the public and before special groups of nurses, social and health workers, will be an important feature of the campaign. Newspaper publicity and other methods of getting over the mesesage of the campaign will be employed.

A manual of publicity and suggestions for the conduct of the campaign will be available about January 1. Copies of this manual will be furnished to any health officer desiring it either by the office of the National Tuberculosis Association or through the office of the state tuberculosis association.

The support of the health officers and of the American Public Health Association in general is naturally anticipated. At the recent meeting of the American Public Health Association in Cincinnati, the interest of the Association was expressed in the adoption of a Resolution to give its assistance in every possible way.*

Health officers and others who are willing to participate in this early diagnosis campaign are urgently requested to get in touch with their state and local tuberculosis and health associations. This campaign offers an excellent opportunity to stress the reporting of tuberculosis and also the need for increased individual and community action.

Any of the supplies to be used in the campaign, including the printed matter and motion pictures may be secured through the affiliated tuberculosis associations. It is hoped that in coöperation with the tuberculosis associations, the health officers will avail themselves liberally of these supplies and will utilize them in every way possible.

By united effort, with intensive publicity concentration in the month of March, 1928, the danger signs of tuberculosis can best be presented to the public.

* Resolution No. 6, adopted at the Fifty-sixth Annual Meeting of the American Public Health Association, October 17–21, 1927. *A. J. P. H.*, 17, 11:1163 (Nov.), 1927.

The Purification of Contaminated Oysters in Natural Waters

CHARLES KRUMWIEDE, M.D., AND WILLIAM H. PARK, M.D. FELLOWS A. P. H. A., AND GEORGIA COOPER, MARIE GRUND, CHARLES TYLER AND CAROLYN ROSENSTEIN

Bureau of Laboratories, Department of Health, New York, N. Y.

RESULTS of a reinvestigation of the cleansing effect of changing sea water on contaminated oysters was reported in the March, 1926, issue of the JOURNAL. Two experiments were made—one in a tank, the other in natural waters.

The tank experiment showed that there was a very marked reduction in the number of *B. typhosus* on or in contaminated oysters after 3 changes of sea water. However, *B. typhosus* in small numbers could still be isolated after 18 changes of sea water covering a period of 24 days. This experiment was not wholly satisfactory for several reasons: First, apparently due to insufficient aeration, the oysters started to die after the 15th day and the experiment was terminated by the lack of further viable oysters. Second, although the temperature maintained was satisfactory for drinking, the volume of changing water was in no way comparable to the volume of change which tidal flow would give under natural conditions with resulting wash effect and dilution. These considerations made it seem that the rate of cleansing in tanks must be materially slower than in natural waters. We, therefore, looked for a place where contaminated oysters might be returned to their natural waters without creating a menace. The water was too cold at this time (December and January) to insure active drinking, but it seemed desirable while waiting for appropriate temperatures to determine the viability of *B. typhosus* on or in hibernating oysters.

Oysters, native to the waters to be used, were accordingly contaminated by drinking them in sea water to which feces containing *B. typhosus* had been added. The contamination was light. The oysters were returned to their waters. After 24 hours *B. typhosus* could not be isolated from the shells. The liquors became negative between the 10th and 17th days. Enrichments of the pooled gills were still positive on the 51st day, when the supply of oysters was exhausted. With the onset of warmer weather we repeated the above previously reported experiment.

Two lots of freshly dredged oysters were obtained. One lot came from the waters where the experiment was to be carried out, and the other from relatively distant waters. This inclusion was thought wise in view of the privilege given dealers to transfer oysters from doubtful sources to clean waters during the closed season. Each of these lots was divided into two batches and one batch of each lot was lightly contaminated and the other more heavily. They were then returned to the natural waters for test. The details of these experiments are given in the tabular summary. In addition to the actual temperatures of the water taken at the time of obtaining the samples the Weather Bureau report is also given as a further indication of the water temperature in the intervals.

TABLE I

MEAN TEMPERATURE FAHRENHEIT

MAY, 1926

8	9	10	11	12	13	14
62°	53°	56°	52°	58°	59°	62°
15	16	17	18	19	20	21
64°	53°	65°	71°	66°	60°	58°
22	23	24	25	26	27	28
58°	55°	52°	60°	60°	58°	56°
29	30	31				
60°	63°	60°				

JUNE, 1926

1	2	3	4	5	6	7	8	9	10
60°	78°	63°	62°	59°	63°	64°	72°	75°	76°

It will be seen from these temperatures that the conditions were such as to insure active drinking. This, with the dilution and wash of the tides, results in relatively quick cleansing as compared with the tank experiment or with the experiment in natural waters, at hibernating temperatures.

Reference to the tabular summary shows that the foreign oysters became negative bacteriologically between the 9th and 16th day, the native oysters between the 11th and 24th days. It should be noted that the last positive result was with oysters contaminated more heavily than would be likely under ordinary modes of pollution of oyster beds. The waters in which these experiments were carried out were near condemned oyster beds. A relatively large sewage content enters nearby waters, yet the area of water used yielded only 6 *B. coli*-like types per c.c. of which 4 were *B. aerogenes* and 2 were *B. coli*.

To complete the data in relation to this experiment it seemed desirable to retest the viability of *B. typhosus* in sea water utilizing the same methods of cultural enrichment. Six c.c. of a fecal suspension of feces containing *B. typhosus* was accordingly added to 3.25 liters of sea water. This was kept in the dark at a temperature of between 15° to 20° C.

TABLE II

RATE OF CLEANSING OF B. TYPHOSUS CONTAMINATED OYSTERS IN NATURAL WATERS

Foreign Oysters

Date	Days in Water	Temp. of Water	Light Contamination: Shells	Light Contamination: Liquors	Light Contamination: Bodies	Heavy Contamination: Shells	Heavy Contamination: Liquors	Heavy Contamination: Bodies
5- 8-26	0 (Controls)	51°F.	286 [2]	25	0.6 [2]	13800	786	61
5-11-26	2	50°F.	2	4	neg. <0.2	300	10	1.2
5-17-26	9	51°F.	neg. <0.1	neg. <0.01	neg. <0.01	neg. <0.1	neg. <0.01	0.01
5-19-26	11 [1]	58°F.						
5-25-26	16 [1]	54°F.	neg. <0.1	neg. <0.01	neg. <0.01	neg. <0.1	neg. <0.01	neg. <0.01
6- 2-26	24	59°F.						
6- 8-26	30	58°F.	neg. <0.1	neg. <0.01	neg. <0.01	neg. <0.1	neg. <0.01	neg. <0.01
6-10-26	32	60°F.						

Native Oysters

Date	Days in Water	Temp. of Water	Light Contamination: Shells	Light Contamination: Liquors	Light Contamination: Bodies	Heavy Contamination: Shells	Heavy Contamination: Liquors	Heavy Contamination: Bodies
5- 8-26	0 (Controls)	51°F.	430	48	0.8	19100	1170	58
5-11-26	2	50°F.						
5-17-26	9	51°F.						
5-19-26	11 [1]	58°F.	neg. <0.1	neg. <0.01	neg. <0.1	neg. <0.1	0.01	neg. <0.01
5-25-26	16 [1]	54°F.						
6- 2-26	24	59°F.	neg. <0.1	neg. <0.01	neg. <0.01	neg. <0.1	neg. <0.01	neg. <0.01
6- 8-26	30	58°F.						
6-10-26	32	60°F.	neg. <0.1	neg. <0.01	neg. <0.01	neg. <0.1	neg. <0.01	neg. <0.01

[1] Five oysters examined to 11th day, ten oysters from 16th day and later.

[2] Quantitative estimates based on amount of fluid used to scrub shells, and total volume of body emulsified in broth.

NOTE—The gills were pooled in fives and incubated in brilliant green broth from the 11th day on. No positive results were obtained.

It will be noted that the mere addition of *B. typhosus* to sea water resulted in the death of nearly half the number. Although survival up to the 19th day was observed, this must be considered a practically maximum figure as the contamination was large and greater than occurs in the pollution of tidal waters.

In this connection it might be noted that in our previously reported experiment on the effect of changing sea water on oysters in a tank, we were able to isolate *B. typhosus* from the 16th change of sea water (21 days), but not from the 18th (24 days). These bacilli came largely from the sediment on the shells or bottom of the tank, possibly to a

TABLE III

SURVIVAL OF B. TYPHOSUS IN SEA WATER

Estimated number of B. Typhosus Added to 1 c.c. of Sea Water Was 2446

Date	Days	B. Typhosus Per c.c.
6/16	0	1360
6/17	1	600
6/19	3	410
6/21	5	250
6/23	7	120
6/25	9	43
6/28	12	0.5
7/ 2	14	0.1
7/ 7	19	0.05
7/12	24	neg. <0.004
7/21	33	neg. <0.002

Remainder of sea water (approximately 2 liters) enriched, no *B. typhosus* isolated.

slighter extent from the inside of the oyster during drinking. These bacilli were probably in contact with sea water the major part of the time and the period of viability checks with the results of the experiment given above.

DISCUSSION

Within the limits of our bacteriological methods, we may summarize as follows:

B. typhosus may survive in oysters for at least from 9 to 11 days, but were not found in examinations made on the 16th and 24th days. This applies to oysters in their natural waters when the temperature is high enough to insure active drinking. *B. typhosus* may survive in sea water between 19 and 24 days. For purposes of discussion we might take the approximate means of these figures, 2 weeks for the oysters and 3 weeks for the sea water. How should these figures be interpreted in relation to determining the minimum time that should be required for oysters to remain in clean waters when transported from doubtful sources? Likewise, should such oysters have been contaminated with *B. typhosus,* what bearing has this on oysters in the beds to which they are transported?

The Health Department of New York City allows such transport during the closed season but no dredging of beds to which doubtful oysters are transported is allowed for 30 days thereafter. Is this a safe limit in terms of our experimental findings? Is a vicious cycle of events a tenable hypothesis?—contaminated oysters discharge *B. typhosus* into the sea water until about the 14th day, some remain viable for about 3 weeks and are able to recontaminate oysters where a number of the survivors may persist for 2 weeks, etc.

Obviously such an hypothesis of continuance of infectiousness ignores the following facts: The experimental oysters were initially more heavily contaminated than is likely to occur in tidal waters, the enormous dilution effect resulting from the tidal flow reducing to a minimum the possible quantitative recontamination, the rapid numerical decrease of *B. typhosus* through death and the lessened viability of the survivors due to lack of foodstuffs and the continued unfavorable action of the salt water.

The last *B. typhosus* were isolated from the liquor or bodies of the oysters where it might be presumed that they were protected to some degree by mucus from the full effect of the salinity of the water. All the facts available seem to indicate that the total length of time of contact with sea water was the determining factor and that contaminated oysters transferred to new water would require for purification a period

of time equivalent to the time of possible survival of *B. typhosus* in sea water or at least not appreciably more.

This further evidence of the possibility of the survival of a minimal number of *B. typhosus* in contaminated oysters even where drinking is presumably at its potential maximum deserves a comment in relation to the "drinking" of oysters in tanks of chlorinated water. The evidence again emphasizes the conclusion that however desirable, such a procedure may be from the standpoint of relative reduction of contamination should it unknowingly exist or of obtaining a safe water for conditioning or for wet storage; the relatively short drinking period cannot be considered a purification process in that it will surely render contaminated oysters safe for human consumption.

CONCLUSIONS

On the basis of the experimental data obtained it may be concluded that oysters contaminated with *B. typhosus*, when actively drinking in their natural habitat become non-infectious in 3 weeks. *B. typhosus* in sea water die in about the same period of time. An ordinance allowing the transfer of oysters from doubtful waters to clean waters during the closed season with the proviso that no dredging in the latter waters be allowed for a period of 4 weeks after the transfer, covers observed facts and gives a reasonably generous excess margin of safety.

Embree President of Rosenwald Fund

EDWIN ROGERS EMBREE, former vice-president of the Rockefeller Foundation, on January 1, 1928, became president of the Julius Rosenwald Fund and associate of Julius Rosenwald in his personal philanthropies, with headquarters in Chicago.

Mr. Embree, following a number of years as alumni secretary of Yale University, has been with the Rockefeller Foundation since 1917, serving successively as secretary, director of the Division of Studies and during the past year as vice-president. In addition to general administrative work he has been responsible for activities of the Foundation in hospital and dispensary service, nursing education, mental hygiene, and the development of the biological sciences. He has spent much time abroad in surveys and studies for the Foundation, visiting most of the nations of Europe, as well as Latin America and the countries of the Pacific, including the Orient, the Pacific Islands and Australasia.

The Julius Rosenwald Fund is the only large Foundation general in scope outside New York City. Its character, like that of the Rockefeller Foundation, limits its work only to "the well-being of mankind throughout the world." Mr. Rosenwald's giving has covered a wide field of interest in relief, education, health and welfare.

Present Status of School Hygiene in the United States*

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THE YEAR 1927 has been one of stock-taking on the part of public health organizations, perhaps because it is the tenth year since the war. The war caused considerable agitation about health, and we find it easy to count by tens. Inventories are highly important for successful business, but good business methods are sadly lacking in much of our health work.

A general review of school health work as carried on in our forty-eight states is not an easy task. The result must be more or less impressionistic and this sketch does not pretend to be more.

STATE SUPERVISION

According to the formula of Herbert Spencer, evolution proceeds from the indefinite and incoherent to the definite and coherent. Taking the country as a whole we are still in a primitive condition as regards state-wide organization and administration of school health work. While there is advanced development in some quarters, there is, on the whole, considerable chaos. Where anything definite appears through the gloom, there are at least two visible shapes: The management of communicable diseases, delegated always to the state department of health, and physical education, whatever that may include, presided over almost exclusively by the state department of education.

When it comes to medical inspection and sanitation there is no such certainty as to what state authority should be in charge or whether anyone is in charge. This is due in large part to the changes which have come about as to the object of such work.

Medical Inspection—Medical inspection in our country began in a search for communicable disease. With the shift of emphasis, about 15 years ago, to the examination for defects, it became obvious that it

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would be better to move the local administration of such work over to the educational authorities, save in handling communicable diseases; and this has been largely done. The states have moved more slowly, and only 7 have placed the management of medical inspection under the state department of education, although in 26 states the medical inspection law must be administered locally by the boards of education. In 9 states the medical inspection law is to be administered by the state health authorities, in 11 it is administered jointly, and in the remaining states no authority is specified.

Forty-two states have some kind of a school medical inspection enactment. In only 16 states is the medical inspection law or regulation mandatory for the examination of pupils in all school districts; in 11 states it is permissive for all districts; in 7 there is no law; while in other states there shall or may be examination of teachers only, or for dental defects in pupils.

As regards the extent of the examination, 19 states command or imply a complete examination, 10 do not specify the extent of the examination, while in the others the teeth, or the sight and hearing, or the sight, hearing and teeth, or some other combination of functions or organs, are to be looked into. One is curious to know just what wisdom directed the varying choice in this matter. As to who shall examine, 23 states specify that they are to be persons of special training: physicians, nurses, physical directors, or dentists, or some combination of these, while 13 states include the teacher among the examiners.

Sanitation—As regards sanitation of schools, which is related to communicable diseases and has been especially so considered in times past when fumigation was in practice, it is to be expected that this work would be placed by enactment under the department of health, and so we find it in at least 12 states. In 6 it is under the supervision of the state department of education. In 12 there is joint responsibility, and according to replies to our inquiries there are a few states in which there is no one in charge. In at least 1 state there is a special school sanitation law, but the enforcement of this law is not delegated to anyone.

In practice, the sanitary condition of schools is usually taken care of locally, if at all, there being no one in either the state department of education or of health who takes it upon himself, or is particularly interested in studying the subject and endeavoring to keep school buildings and premises sanitary, and educational in these directions. There are exceptions, however: the state department of health of Connecticut recently completed a survey of water supplies. The department of health of Indiana made 92 sanitary surveys of schools last year, ordered

improvements in 68 cases, and prohibited the use of 24 buildings until sanitary conditions were remedied. The department of health of Kentucky has been making a survey in 40 counties. Possibly such surveys are made in other states, but we have not had the time to make a study of this subject in connection with this paper.

STATE AND LOCAL ORGANIZATIONS

There has been, we believe, no recent study of sanitary regulations, but at last accounts 12 states had no laws or regulations as to the provision of fire escapes or other means of fire protection for school buildings. More than half the states have regulations with regard to the provision of drinking fountains, but such fountains are often far from sanitary, while the water they supply may be from unsafe sources.

More than a fourth of the states had no legal provision for the supply of a privy, and in these states there are not only many schools without such a convenience, but, unfortunately, this occurs in some states which can least afford to be careless of human excreta. As an example of the turning over of a new leaf in the book of school sanitation, the revolution as to supply of toilets and their proper construction in North Carolina is most encouraging. A recent letter from the Director of Sanitary Engineering of North Carolina states that the installation of sanitary privies has been accomplished in all municipalities and villages. Unfortunately the law thus carried into effect is not statewide as to rural schools.

The consolidation of schools has brought with it improvement in all sanitary arrangements and especially in sewage disposal. About one-third of the children from rural and village homes are, however, still in one-room schools. Consolidated schools are not without their drawbacks, and the question of heating and ventilation becomes of especial importance.

Half the states have specific laws regarding the ventilation of school buildings, and these laws seem to reflect an earnestness in the cause of health which is most creditable, for they entail much monetary outlay. Unfortunately they would now seem to have been of too specific a nature; but the legislator, who is presumably a practical man, has cause to question the fickleness of science, and he will want very good reason before revoking these ventilation laws.

The establishment of open air schools was an admission that ordinary classrooms are unhygienic. The reduction in the number of overheated rooms is a move toward better hygiene, but we ought to leave no question as to healthfulness.

There is general appreciation of and improvement in the lighting of

schoolrooms, and also in seats and seating, though we have far to go in some sections, for artificially lighted and poorly lighted schools are still to be found without much searching in our cities. No type of seat or desk really fits any child for very many minutes, but the fit ought to be better in a larger proportion of schools than it is.

If state-wide school sanitation is rarely satisfactory, neither is it so in some large cities with all their machinery for its promotion. In the sanitary survey of Philadelphia for 1924–25, 26 schools were classed as "poor," and ten as "bad," though this city is no exception. Nevertheless improvement is going on everywhere.

Physical Education and Health Teaching—Thirty-five states now have laws requiring physical education (which usually includes the teaching of hygiene). Although this is a prominent landmark amidst the confusion of administrative practices or allotment, even here there is in 5 states specification of participation by the department of health in control. In 10 states no organization is responsible for promotion of the school health educational program, and in 8 this great responsibility is shouldered on the department of health which is outside the school field and, besides, more than has its hands full with other activities.

ORGANIZATION IN STATE DEPARTMENTS

It is encouraging to find 15 states showing sufficient interest in the subject of school health (aside from medical inspection) to make someone responsible for getting this work under way and keeping it going. Fortunately, these states comprise half the school population of the country so that the general picture is better than mere numbers of states would suggest. There is, however, little evidence in most quarters that the promotion of health is considered in practice, with nearly the concern with which it is regarded in theory. In fact, in at least 3 states, although the law establishes the position of state director of health and physical education, no funds are appropriated to fill the position.

From this necessarily blurred picture of the general conditions as to state organization and regulation of school health work one must expect much dissatisfaction among state officials, and this is almost universal.

In a few instances, very good work is being done under the direction of state departments of education, departments of health, or with joint supervision. It all depends on personnel, coöperation, and available funds, although it would seem that the personnel for this work could be most advantageously installed in the office of the department of education.

That state supervision of medical inspection produces quantitative

results is evident if we can trust statistics: Pennsylvania claims the examination of 98 per cent of pupils enrolled; New Hampshire "practically all"; Virginia 91 per cent; New York about 80 per cent. Possibly some other states do as well, but we have no records and for most of them the number examined in rural schools must be very few indeed.

LOCAL SCHOOL HEALTH WORK

With the diversity in laws and of active interest and positive stimulation and guidance of health work existing in state departments, we may expect to find all degrees of excellence of work carried on locally, and much mediocrity or even absence of work. Since this latter condition of affairs exists in some localities where there are excellent state laws, state supervisors, and a genuine interest in health promotion, we can expect very little progress where there is nothing of the sort.

So far as the finding of defects is concerned, medical examiners have, since the time of Cohn, been most interested in the matter of vision; yet from an estimate of the Joint Committee on Health Problems in Education not half of the school children of the United States have ever had their eyes examined. This signifies that in not more than half the schoolrooms of the country has any attempt at medical inspection been made, and yet we are still talking of how very much shocked we were over "the revelations of the draft."

Information received by the Bureau of Education is fairly definite regarding larger cities, but becomes hazy as we approach the smaller cities, partly from lack of replies to inquiries and partly from indefiniteness of the answers. Judging in a general way from these returns, in most states there is practically no medical inspection worth the name in communities having a population of less than 10,000. There are plenty of exceptions in some states, but this can be considered the rule. The forces interested in health work are weak in smaller communities and the boards of education move along conventional lines. Even in cities of between 10,000 and 30,000 population, only about two-thirds report the employment of a school physician.

A large proportion of school physicians are on part-time, which may be advisable for assistants, but not usually for the physician in charge. Their pay ranges from $.42 to $4.00 an hour, and it is safe to say that in most cases the school gets no better service than it pays for.

A nurse is employed by practically all cities of over 30,000 population and there is an average of 2 nurses to 1 medical school officer and about 1 nurse per 3,000 children. Three-fourths of the cities from 10,000 to 30,000 employ nurses, and these average the same number as physicians.

An annual examination of pupils is attempted by about 50 or 60 per cent of these cities, the examinations being made to an increasing extent, in part, at least, by teachers and nurses and in most instances there is a physician to check up the findings of other examiners.

In communities under 10,000, and particularly those under 2,500 population, there is a decided falling off in physical examinations, and, except for certain states which stand out as exceptions, there is very little of such practice in villages and in rural schools; in other words, for half the school population of the country. In the notable exceptions, there is a mandatory law, for the carrying out of which a state department is made responsible.

Health work in rural schools, along all lines, halts because of lack of adequate district or county organization for both education and public health and lack of close coöperation between such organizations.

QUALITY OF MEDICAL INSPECTION AND RESULTS

Medical inspectors have been engaged too much in the tedious business of finding any or all defects regardless of whether these really needed correction or were even correctable. It is needless to say that few medical inspectors have had any special training for their work, and the lack of research by American workers in this field is appalling. The remark of Dr. James Kerr that "medical inspection of school children ought to have added enormously to our knowledge, if it had been scientifically organized," is doubly true in our own country. But it is largely a matter of recompense. The physician who determines vision only by the Snellen card, uses the same tongue depressor on all children, and reports all large tonsils as defects, is what we may expect to get for our money.

An improvement is slowly coming about, in that information about children is being secured from those who know them most intimately and in a working capacity. Parents and teachers are given grudgingly to some extent the place they deserve in the scheme of child study. The teacher is expected to show an interest if Johnny Jones cuts his finger, but it is more essential that she, above all persons, observe whether the said Johnny can see his letters, or hear her voice. The parents must some time learn about defects, and why not first-hand when they can be helpful in determining whether a defect is really worth correcting? We are more likely to get defects corrected if we present the need directly instead of beating about the bush with notes from principals or with expensive visitations from the school nurse. There are practically no school physicians or nurses for half the school children of the country: but there are teachers for all of these, who, with comparatively little

training, make as good examinations as the average school medical inspector, and they are in a more strategic position for doing so. In either case the final diagnosis is made by the family physician or dentist. The hope for physical examinations for half of our children and for better examinations of the other half lies in a right training of these teachers. I speak from experience in the training both of medical students and of teachers.

Removal of Defects—We have not, on the whole, passed out of the stage of the mere finding of defects, for according to a report from one school district employing a physician, 60 per cent of the children were found defective, and but 2 per cent were treated, while in another district of the same state 85 per cent were reported defective and 80 per cent corrected.

As examples of average results, we have the state-wide figures from New York (1923–24) showing 62 per cent defective and 44 per cent corrected. In Pennsylvania 1924–25 the figures are much the same.

Such statistics are often misleading, as the percentage of corrections is determined in part by the nature of the defects included, and the mere treatment may not mean adequate treatment. This all proves the need for better personnel and a knowledge of the essentials in defects and in their correction.

Taking the results at their face value, it is interesting to note that, although the number of defects reported in the city and rural schools is practically the same (1,000 per 1,000 children) the percentage of defects "corrected" in rural schools is just about half that in city schools.

Granted that the defects can be corrected and are worth correcting (and they should not be reported unless they are) it is a waste of time and money if after finding them they are not treated.

A review of the reports of the Division of Medical Inspection in Philadelphia for the past 10 years shows a remarkable uniformity in the proportion of physical defects corrected, which runs about 46 per cent for the more important defects or 55 per cent for all. In contrast, it is illuminating, however, to read that "remarkable results were secured at the Philadelphia Normal School where 96.3 per cent (double that for elementary schools) of all physical defects recommended for treatment were corrected," and the only persuasive factor not existing in the elementary schools is a regulation that all defects must be corrected "if the student is to continue as a teacher-training candidate."

Practically 100 per cent corrections are also secured in Connecticut by a similar edict of the state department of education as regards students entering its teacher-training schools.

We are always working from the top and perhaps in the course of a

half century we will make it a regulation that the child whom we compel to undergo the process of education shall be put and kept in condition to profit by that process.

However, where health is not considered an incidental matter by principal and teachers, really thorough work can be done and is done, and we have reports from a few school districts of corrections which reach near 100 per cent and, for some defects attain it. In 9 schools of one rural district all of the 1700 pupils had their dental defects corrected, and in at least one junior high school the principal has dared to lay down the law that no pupil shall be graduated who has not had his teeth placed in 100 per cent repair. If such a ruling could be extended to cover all defects, medical inspection would be placed on something better than a dilettante and sentimental foundation; there would arise a serious interest in the subject of what constitutes a remediable defect; and there would be a scurrying about to find medical examiners worthy of their tasks.

Dental Work—As regards dental defects which figure so largely in the general total, the medical examiner has been reporting only about 40 per cent of elementary children as having such defects when actually 90 to 95 per cent have an average of 7 carious teeth. One reason for poor results in treatment of these defects has been that the medical inspector has found only advanced conditions chiefly in temporary teeth, the majority of which could not be really corrected if worth correcting.

With the possibilities in prophylaxis developed through the work of the Forsyth Dental Infirmary it would seem that the chapter of dental work which dealt chiefly with rotting teeth can be closed, though it may take some time to open the new one in which these infinitely the most common of defects will be adequately dealt with. No matter however whether we anticipate, or wait for, decay dental defects should be dealt with at the earliest possible moment, and the examination for such conditions should be made by the dentist, dental hygienist or someone who knows the signs of beginning decay. We believe it is only a matter of time when the dental hygienist will be trained to do early fillings, the dentist being reserved for the more difficult and elaborate activities of his profession. In that advanced country, New Zealand, the routine work of the school dentist is done by such an assistant, and it would seem that most of such work could safely and economically be placed in her hands. Even by the older methods, where there is real interest in the matter, 100 per cent of corrections have been secured in some of our schools, and abroad, a thorough program has been carried out in at least one city at a surprisingly low cost and with the result that 90 per cent of the children now leave school with sound teeth.

Nutrition Work—Weighing and measuring of children has recently been a feature of school work hinging on the one side with medical inspection, and on the other leading to the interesting of pupils in habits conducive to health. Unfortunately it has been dragged too much into the strong current of standardizing which has swept the country and the use of tape and scales has been too exclusively associated with classification according to deviation below or above certain arbitrary standards. This, in turn, has given emphasis to quantity rather than quality in nutrition. The mere fact that a child does not weigh a certain number of pounds (even the lack of one pound may label him underweight) does not at all signify that he is not so well fed as a child who does weigh that number of pounds. Nutrition classes based on relative weights still exist, though we are of the opinion that their number is diminishing; but there is, fortunately, an effort to have all children better cared for at home. The noon lunch too, whether in city or rural schools, is vastly improved in materials and methods of service all over the country.

On the side of medical work, the tape and scales have been used as means of sorting children for special preventive measures against tuberculosis; those falling into a certain percentile group being considered "threatened" with this disease, to use a very convenient phrase. The studies of Morse, McDougal, Reisman, and others have quite upset this theory, and Hill has furnished ample proof that relative weight has nothing to do with the incidence of any of the common infections of childhood.

HEALTH EDUCATION

We have had 10 years of the new hygiene or "health education" as it is called.

In 15 states there is a state director of physical education in charge, and in at least 2 of these a specially designated supervisor of health teaching. In these states such work goes much better than in others, though the existence of a state official cannot make up for lack of teacher-training or of local supervision and direction.

Local Supervision—From the beginning of this work the teachers were not prepared by their training, and what they are not specifically prepared for they seldom do without direct supervision. Even with the large turn-over in teachers, the percentage so prepared must still be small in most sections of the country. It is probably safe to say that in three-fourths of the cities of all sizes health education of the new order is conducted to some extent in elementary schools. A special directing health teacher is employed in about 10 per cent of cities over 30,000 and in 5 per cent of smaller cities.

In rural schools with an enrollment of 10,000,000 children we find little or no such teaching, with many contrasting spots, however, where there is excellent district or county supervision by a special hygienist or thoroughly prepared teacher. In some of the western states where county superintendents are awake to the importance of health, there is even a demand for well prepared health supervisors which cannot be adequately filled.

It all depends on the local education authorities and we cannot expect these to be made over in a day, or to be more than local demand calls for and pays for. Many of these, when the matter of health work is inquired into, are likely to state that they have no funds, or no special teachers, neither of which are needed for doing excellent work along these lines.

The time devoted to teaching of health in elementary schools varies from zero up to 160 minutes per week, with an average of about 60 minutes.

Content and Methods in Health Teaching—Besides our failure to recognize the predominant rôle of the home and of parents in the scheme of health teaching, our efforts have suffered again from the current tendency to try to standardize the human being. This has resulted in setting down exact measures as to the amount of milk or water every child shall drink, how many hours he shall sleep, the number of his bowel movements per day and other rules equally absurd. Our teaching has also been upset by the weather-cockishness of science which in one season says the use of the tooth brush preserves the teeth, and in another says it does nothing of the sort; which makes much one year of calories and in another sees our salvation in vitamines; which talks one season of poisonous air, and in the next says that only over-heated air is injurious.

HEALTH TEACHING IN HIGH SCHOOLS AND COLLEGES

High schools, struggling under the load of college requirements, find scant time for anything of so intimately human importance as hygiene, and recent information received by the Bureau of Education shows that in not more than 25 per cent is any definite time set apart for class work in this subject, and we are not at all certain that even in these schools it is taught to all pupils. One school admits that this subject is taught only to girls. When taught, the time devoted to the subject varies from 15 to 225 minutes a week.

Nor do the colleges take the matter of health as seriously as we would expect. One of the oldest and most influential offers a course of only 3 lectures in hygiene as a preparation for the "art of keeping alive

and well," although 50 years ago 24 lectures were given to all students.

There is always the danger of running to the other extreme by over-doing such teaching and making the pupil tired of hearing about health and sick of trying to practice the laws of health. The subject is indeed a difficult one to handle wisely, and in our professional ardor we need to avoid its over-doing.

PHYSICAL EDUCATION

Taking physical education in the Spencerian sense, it includes all school health work, and in the special realm of the direction of physical activities of playground and gymnasium it attempts to minister to one of the primal needs of the child which makes for physical and mental health.

The director of physical activities is among the best paid of our specialists, a fact which speaks much for the recognition of this work. It found its way into the curriculum under the form of classroom gymnastic exercises intended as a means of counteracting the recognized unhealthful conditions of school existence. The 15 to 30 minutes a day (or the two periods a week) usually devoted to such work is absurdly small, unless it be considered only as a time of instruction in activities to be practiced elsewhere.

So long as past conceptions of education hold sway, it is not likely that further time for physical activities will be allowed in school hours, but opportunity for the practice of these should be furnished elsewhere.

Schools, particularly high schools, have been going to extravagant expense for coaches, paraphernalia, etc., for the few who participate in inter-school sports, and it is but logical that they should do as much for the rank and file. Adequate space and adequate supervision for the physical activities of all children for at least 2 hours every day of the week would seem to be a minimum need in every community. Very few can boast of this offering.

CONDITIONS TO BE MET

It is easy for us to sit in our offices and arrange school health programs and say they should go thus and so. But our plans often meet with difficulties in the mental attitudes of educators, school boards and communities at large, hanging over from medieval if not from primeval times. However, very few discouraging or discouraged remarks come from communities over 2500 population, and even in rural communities there is an appreciation of the importance of the health program reported by many superintendents.

No review of school health work is complete without consideration of the coöperation of the home, for, while other school matters may be

handled without help from parents, it is quite otherwise with the physical improvement of the child. We have overlooked this fact altogether in the past, but we are rapidly making amends. In the meanwhile the Parent Teacher Association has become our most helpful ally. I do not need to emphasize its importance.

Promotion and supervision of school health work by voluntary agencies, such as the tuberculosis association or Red Cross, exists statewide or locally in some sections of the country. While this seems a primitive condition, when we consider the theoretical interest in health exhibited by the educational world, it is better than no work, and leads in time, if wisely conducted, to the development of such work under the appropriate agencies.

The organizations especially interested in the hard-of-hearing, in the crippled child, and in the child with poor vision, have done excellent work in promoting special facilities for their education in city and to some extent in rural communities. Such work is progressing favorably.

The American Child Health Association remains a powerful agent in the stimulation of all forms of school health work, and we are all interested in the attempt at evaluating the actual value of our present practices which it has undertaken.

Among the very hopeful signs of the times is the great progress made in school health work along all lines in parochial schools. This activity is being stimulated and directed through the Bureau of the National Catholic Welfare Conference, and health education courses for teachers have already been introduced in some of the Catholic universities.

PRESCHOOL EXAMINATIONS

Among the recent developments we must mention the attempts made by various agencies to secure the physical examination and treatment of children prior to entrance to school. This is a laudable undertaking, but does not replace school medical inspection. The preschool child cannot be satisfactorily examined as to certain defects, and, besides, after entrance to school he retains many of those he had, and often adds new ones. Although children are examined every year in Philadelphia and 50 per cent of defects are reported as "corrected," the total number of defects reported in 1925 were: for elementary, 1050 per 1000 pupils; for junior high and trade schools, 837; for senior high schools, 800; and for normal schools, 1063. Seemingly at graduation from high school the student, although examined every year, with about 50 per cent of his defects corrected, has as many defects as in the beginning of his school career. If we omit dental defects, substitute the word "treated" for corrected, and remember that communicable dis-

eases, like the poor, we have with us always, these figures are not so discouraging as they seem.

SUMMARY

Considering the inertia of pedagogical tradition and the heavy weight of family custom and personal prejudice which must be overcome, we are really making rapid progress along all lines of school health work, and the few mistakes, due chiefly to the shifting sands of science and our current obsession for standardizing, have not thrown us much out of our course or caused us much regret.

There are a few points which seem to stand out as especially obstructive to progress. Our legislators have been quite generous toward school health work, but many of our laws would be more helpful if less specific as to details and more definite as to enforcement. There is need of integration, organization and competent direction of all school health work in state departments and locally. There is need of closer understanding and coöperation between health and educational authorities.

Medical inspection needs to be placed on a more businesslike basis, both as to examinations and treatments. Dental inspection should be completely divorced from other work and conducted by dentists or dental hygienists. Adequate teacher-training in health examinations and health teaching are of great importance and are not as yet fully met. There is need for the development of ample facilities for, and direction of, physical activities out of school hours. We have much to learn in regard to school sanitation, and there is still the troublesome problem of communicable diseases and of malnutrition, which together are prominent factors in practically all of the defects and diseases of school children. Immunization against communicable diseases must be carried out as far as possible. The home must be hitched up with the school in interest and knowledge of child health if we are to get very far.

After all, however, the child arrives at school at a comparatively advanced stage of development and already possessed of most of the physical defects he will have during all his school days. The school cannot undo what has been done. We need to begin much earlier than the school period to advance the physical and mental welfare of the race, but by whole-hearted understanding and coöperation of educators, hygienists, and the home we can accomplish much.

Ambition and desire are fundamental to the search for health, as for the attainment of any other end, and in the period of school life we can perhaps accomplish most along lines now most neglected; namely, by endeavoring to arouse in high school and college students the desire and ambition for the improvement of the generation that is to be.

DISCUSSION

GEORGE TRUMAN PALMER, DR. P.H., FELLOW A. P. H. A.

Director of Research, American Child Health Association, New York, N. Y.

DR. ROGERS'S PAPER gives us a very clear presentation of the school hygiene situation in this country. We have popular interest in health. We have recognition of the importance of health on the part of educational authorities. We have laws. At least 42 states have acknowledged by statute the desirability of school medical inspection. These are indications of growth and progress.

There is an aspect of this work however which is almost totally undeveloped, and that is the measurement of results. We do not know the degree to which the object of this work, the school child, has profited from all this effort. Has not the time approached when we should seriously tackle the job of checking results?

The business man is accustomed to the taking of an inventory. He wants to know not only how much goods have been sold but what has been the net return in dollars and cents. The aviator wants to know not only how many miles he has travelled and the quantity of gas consumed, but also whether he is keeping to his course. In school health work we ought to know not only how many examinations or nursing visits are made but how much the level of health has been raised as a result of the specific measures used to accomplish this end.

There are at least three rather distinct purposes of school health work: First, there is the protection of the child against the hazards of school life. Education is compulsory, and therefore it would appear only fair to fathers and mothers that the educator should give assurance that every precaution will be taken to prevent attendance at school from endangering health. It is this thought which justifies sanitation of the school plant, watchfulness against the spread of communicable disease, and immunization against such diseases as is practicable. The second objective is the protection of the school investment, by making certain that the pupils for whom educational expenditures are made are in a fit physical condition to receive instruction efficiently. It is this fact that justifies physical examinations and nursing service. A third objective is part and parcel of education, the building of a better informed and more virile citizenry. It is this purpose which justifies health education and physical education.

To measure progress toward the first objective there is needed at least a more precise knowledge of the causes of absence distinguishing between those causes related to health from those not so related. Absence might well be recorded under five distinct headings: A, colds and their complications; B, the specific communicable diseases of childhood such as scarlet fever, measles, diphtheria, etc.; C, other ills and injuries; D, exclusion not because of illness, but because of exposure to others with recognized transmissible diseases; E, causes other than illness or exclusion, such as staying at home through fear of epidemics, visits to relatives, etc.

Measuring the second point involves the development of reliable objective methods for gauging the status of different aspects of physical condition, such as vision, nutrition, hearing, teeth, etc. We have standard methods of water analysis; we need commonly accepted standards for expressing results of school health work.

Let me digress for a moment here to say that in speaking of standards of measurement, I do not mean to imply that children should be standardized or that health programs should be standardized. Mention of the word standardization frequently

provokes an unfavorable reaction. In measuring results, however, there must be objectivity, and this means standardization in terminology and in technic—otherwise comparisons are impossible.

It is the lack of such standards that renders existing reports on physical defects and corrections valueless for comparison. One city reports 10 per cent of children possessing a certain defect. Another city reports 30 per cent. In one place vision is called defective if the 20/20 line cannot be read. In another place a defect is not recorded unless the 20/30 line is not read. Until a defect is defined in precise terms and the manner of determining that defect reduced to standard routine, the resulting figures do not show real differences in the distribution of physical handicaps among children. This type of measurement though difficult is not insurmountable.

The third objective can perhaps best be checked by tests of knowledge, habits, attitudes as well as of strength and physical prowess. Such tests of course tell only part of the story because the lasting success of health and physical education will not be known until school days have long been passed.

It is with the object of contributing to this field of measurement in school hygiene, that the American Child Health Association has recently embarked on an intensive study. Their efforts are directed toward portions of the second and third objectives, the measurement of different aspects of health status and of health knowledge, habits and attitudes.

For a year and a half research has been conducted with children and with examiners in the effort to secure objective, reliable and valid measures. The same children have been repeatedly tested by different people, each working independently. Gradually there have evolved methods proved by actual trial, which will give the same result in the hands of different examiners, which will give the same result a week from today as today, providing the object being examined does not change, and which assure a measure of the thing that it is desired to measure.

In the development of the plan of this research and in the development of the original technic used, the greatest contributor has been Raymond Franzen, Ph.D., a man of wide experience in the field of educational measurement. He has been assisted by physicians, teachers, nurses, dentists, public health workers and others.

Equipped with these testing procedures, the A. C. H. A. has just dispatched three squads of technicians, five members on a squad, to make observations upon from 8,000 to 10,000 fifth and sixth grade children scattered over 70 cities of the country. This will continue during the present school year.

It is the ambition of the association to derive from this experience: First, a knowledge of the differences in certain aspects of health in children, and consequently a better understanding of school health problems. Second, a knowledge of the degree to which certain aspects of health are associated with certain school health activities. Third, a means whereby school authorities can judge progress in health promoting activities. Fourth, information which will be of assistance in laying out a more productive and resultful health program in the schools.

If some of the hopes of the association can be realized from this study, it should be possible for school administrators to discriminate more wisely in the choice of school health activities, to eliminate the unproductive, and cultivate more assiduously the steps that count.

NOTE: The discussion by Harold DeWitt Cross, D.M.D., will appear in the February JOURNAL as a separate article, entitled "Dental Hygiene Aspects of the School Health Problem."

EDITORIAL SECTION

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear, and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

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THE NEW JOURNAL

WITH this, the first number of its eighteenth year, we present to our readers a new AMERICAN JOURNAL OF PUBLIC HEALTH. In doing so, we are taking an important step in the forward looking program which the American Public Health Association has adopted with respect to its publication activities. The JOURNAL comes to you in a cover of livelier hue and with a new dress of type notable for its beauty and legibility. It is printed on a fine grade of book paper. It is a sewn book, easy to open, easy to hold. It is indeed a new JOURNAL in appearance. But as to well written, soundly scientific text content it is the old JOURNAL. We shall keep the standard as high as ever and exert every effort to raise it.

In this new JOURNAL is incorporated for the first time another periodical, a publication which has made a place for itself in the public health field under notable editorship recently and in the past and always with fine publishing ideals. The American Public Health Association has acquired *The Nation's Health* from the Modern Hospital Publishing Company of Chicago. With this issue, *The Nation's Health* is merged with the AMERICAN JOURNAL OF PUBLIC HEALTH. The names of both will appear on our cover and title pages. The most noteworthy features of both will continue each month.

We welcome to our pages the thousands of readers of *The Nation's Health*. We welcome its advertisers who thereby gain a larger audience and one that completely represents the public health field. We go forward with our banners high and remembering always the words on the Association seal: "And the leaves of the tree were for the healing of the nation."

THE DISMISSAL OF DR. HERMAN N. BUNDESEN

IT HAS BEEN a long time since anything has occurred which has so shocked the public health officers of the United States, or done so much to upset the morale of those engaged in health work, as the dismissal of Dr. Herman N. Bundesen as Health Commissioner of Chicago. Some suspected that this would occur soon after the election of Mayor Thompson, but as the months went by, everyone felt that he had recognized the fitness of things by retaining a health officer who has been distinguished by his beneficent activities. We know of no charges which have been made against him. On the other hand, we know that he has received the highest commendation from the best class of physicians in Chicago, and in addition, has been the recipient of a number of distinguished honors, such as the Lawson prize, which was given on account of his good work in saving the lives of infants and insistence on clean milk, and an honorary degree by his alma mater conferred largely because of his record as a health officer. He was also elected President of the American Public Health Association.

We know further that he has surrounded himself by a group of unusually efficient men; that every department in his office was headed by an expert; and that the entire health department of Chicago has been a model in organization as well as accomplishment.

The value of experience has apparently been thrown to the winds. The new appointee has been a resident of Chicago only since 1922. There is no evidence that he has ever had any training in public health work, and the only experience of this kind which is noted is that he was appointed by the mayor as Chairman of the Medical Section of the Chicago Flood Control Conference. While we wish him every success, it is perfectly evident that he lacks public health training as well as experience, and we judge of this by what purports to be an official document concerning him. His entire training, apart from that which the usual medical student gets, seems to have been in surgery, and he is spoken of as a "surgeon and surgical consultant."

In this connection, we wish to point out that the medical degree does not of itself fit anyone to be a health officer. It requires special training and a certain amount of experience, for which we believe the medical degree is a great assistance, but which is very far from making one proficient in public health work.

This JOURNAL has always stood, and we hope always will stand, for tenure of office, so that a competent health officer and his assistants may be assured of permanency. Politics is the most baneful influence to which public health work in this country is subject at the present time. It has been responsible for disasters in the past, and we believe

is still the chief cause of many of the shortcomings which those interested in public health work recognize.

While the new health officer has, according to the newspapers, denied that he expects to discharge any of the personnel at present in the department, he has also said that if the mayor wished to appoint any friends, he would try to coöperate.

We hope that nothing we have said will be considered personal. It is not intended to be so, but unquestionably a most deplorable situation has come about, and no one on the outside knows what to expect.

Chicago is one of our largest and most important cities, and what happens in health matters there deeply concerns the entire United States.

This JOURNAL is interested in building up public health as a profession, and every such occurrence sets back the good work which has been going on for a number of years.

THE BAD MILK IN OUR SMALL TOWNS

STARTLING and shocking are the facts revealed by a recent survey of market milk in the small towns of the United States. In our towns and cities having populations of less than 25,000 the milk seems as a general rule to be dirty and contaminated. According to a report of the American Child Health Association,[1] which has coöoperated in investigations in 19 states, the milk supplies of small towns are high in bacteria, seldom come from tuberculin tested cattle, and are rarely pasteurized.

In 117 small towns and cities studied, an average of 25 per cent of the milk supplies examined contained 200,000 or more bacteria per c.c., while an average of 40 per cent had 100,000 or more bacteria. Fifty-one cities gave a positive test for *B. Coli* in 50 per cent or more of the supplies tested and 21 cities gave such a positive test in 75 per cent or more. Physical standards used for showing dirt revealed that most of the milk was actually dirty. In only two places could 75 per cent of the supplies be classed as "clean" or even "fairly clean."

Not one of the 117 towns and cities had 90 per cent pasteurization, and 97 of these communities had no pasteurization at all. These facts are in direct contrast to the large cities of the country, as more than half of the cities with a population of 100,000 or greater now have 90 per cent or more of their milk supplies pasteurized.

These significant facts call for strenuous efforts on the part of sanitarians to assure a better and purer supply of the best of foods of man.

Campaigns to induce people to drink milk are valuable, because good milk is the one nearly perfect nutriment, but along with these cam-

paigns must go assiduous endeavors to secure clean and safe milk. There are apparently many parts of the country where it is wiser to use some concentrated form of milk, such as the dried product, than the extremely dangerous fluid milk supply. The milk furnished in our large cities, at least that supplied by the more reputable companies, may be drunk with impunity, but until more adequate and intensive methods have been taken to improve the milk supplies of small towns, their use as a beverage is evidently fraught with some hazards.

[1] Crumbine, S. J. and Holland, D. F. Survey of Small Town Milk Supplies, *Child Health Bulletin*, Nov., 1927.

SANITATION OF WATERWAYS

THE newly constituted Board of Public Health Engineers of the Ohio River Basin* is believed to be the first board of its kind in this country. Its creation points clearly to further improvement in the sanitation of our waterways.

Our methods of attacking the stream pollution problem are varied, to say the least. Some consider coöperation with industry as the solution; others maintain that the results of research will prove to be the explanation; while a third group adheres closely to strictly regulatory measures. It would seem that the combining of all three of these courses in such balance as to be applicable to the needs in each separate instance would be the best procedure.

From the administrative standpoint, authority for control has been lodged in some cases in a single regulatory body such as a state health department, and in others, in a new group like the Pennsylvania Sanitary Water Board having diversified interests. However, the general tendency appears to be toward the formation in states of such boards or committees as will include within themselves all the different interests concerned in the purity of the waters. The policies of these administrative bodies differ. Some set up rigid control to abate or, at least, diminish all pollution; some, under a plan of stream classification, propose that certain waterways should be devoted to the reception of wastes, while other streams should be maintained in their present state of purity.

The trend in waterways sanitation in this country resembles that in England which has had a hundred or more years of experience with this question. The chemist [1] of the West Riding Rivers Board has pointed out that in England there has been an improvement in the waterways of the older industrial areas due to remedial measures. On the other hand, he indicates that in the newer areas conditions are

* See page 104.

becoming worse on account of the increase in the amount of sewage and industrial wastes. His proposals for the improvement of stream conditions are: (1) the survey and classification of streams and watershed areas, and (2) the formation of additional rivers boards. He also suggests that liquid trade wastes be admitted to public sewers and that increased research in fundamental problems of stream pollution and sewage treatment be provided.

Apparently waterways sanitation has lagged in England also, because of divided authority. Lord Mildmay of Flete [2] points out "how the problems of pollution have constantly engaged the attention of Royal Commissions, of Select and Departmental Committees, of scientific bodies and of other institutions, for more than half a century and how all have agreed that some form of central authority is absolutely necessary in view of the lack of coördination which exists amongst those bodies that have control of rivers—lack of coördination which has resulted in confusion and indifference."

In reply the Lord President of the Council, the Earl of Balfour, stated that there were two problems to be considered; namely, an administrative one and a scientific one. He advised the House of Lords that, to cope with the first, the government had appointed an advisory committee representing the departments concerned and having as chairman Sir Horace Monro and, to handle the second, a board,* with Dr. H. T. Calvert, M.B.E. as chairman.

From the foregoing comparison, it appears that, in many ways, practices related to administrative and scientific attack of the stream pollution problem in England and in this country are more and more approaching parallel lines. This division of the regulatory and research problem would seem to be a wise example to follow in this country.

*From the context of the unrevised report it appears that this group is called the Water Pollution Research Board.

REFERENCES

[1] *Surveyor*, Vol. 72, July 22, 1927.

[2] *Parliamentary Debates*, House of Lords, Monday, July 18, 1927, 68, 58:602.

BACK TO BEGINNINGS

THE National Tuberculosis Association has taken a wise step in the inauguration of a country-wide early diagnosis campaign, as outlined elsewhere in these pages.

The hope of cure in tuberculosis depends upon the early discovery of the disease. There is abundant evidence, both from clinical observation and the post-mortem table, that of all the chronic diseases, tuberculosis is probably the most easily healed. Many authorities

agree that if the disease is discovered in its incipiency, or in its "minimal stage," to use a more scientific term, as high as 85 per cent of those placed under proper treatment will be restored to working efficiency.

But while these truths have been vigorously proclaimed for twenty years or more, there still seems to be an apathy, both on the part of the public and the medical profession, to the significance of the early recognition of tuberculosis. The disease is so insidious in its beginnings and resembles in its minimal stages so many pathological conditions other than tuberculosis, that detection before serious lesions have resulted in the lungs is extremely difficult.

Study of early cases on record in sanatoria for the treatment of the disease and in the files of health departments, indicate a need for concentrated effort along the lines proposed by the national, state and local tuberculosis associations to be carried on during next March. Less than 20 per cent of the pulmonary cases which go to the average tuberculosis sanatorium are in the real early, curable stages of the disease.

Plunkett's study of tuberculosis reporting shows that almost one-half (44.7 per cent) of the cases which terminated in the death of the patient were either not reported at all (14.1 per cent) or were reported after death (30.6 per cent). Alice M. Hill's studies in Fargo and elsewhere show that from a follow-up of physicians' records of tuberculosis there is much more diagnosed tuberculosis in any community than is ordinarily believed to be the case. On the basis of experience showing that about one-third of all cases of tuberculosis discoverable in a community are usually unknown before the adoption of intensive methods of case finding, the National Tuberculosis Association estimates that there are approximately 270,000 active but unknown cases of tuberculosis in the United States at the present time. It is these cases that the early diagnosis campaign seeks to discover.

We commend, therefore, the activities of the national, state and local tuberculosis associations in going back to beginnings and in laying emphasis upon the diagnosis of tuberculosis.

ASSOCIATION NEWS

PROCEEDINGS OF GOVERNING COUNCIL AND EXECUTIVE BOARD

DURING the Fifty-sixth Annual Meeting of the Association at Cincinnati, O., October 17–21, there were three meetings of the Executive Board. The Governing Council met five times, the last being a meeting of the newly elected Governing Council. A digest of the minutes of these meetings and reports of the committees are published here for the information of the Fellows and members of the Association.

GOVERNING COUNCIL PROCEEDINGS

OCTOBER 17

Local Committee—William H. Peters, M.D., Chairman of the Local Committee offered the hospitality of Cincinnati and expressed the hope that the meeting would measure up to the high ideals of the Association, and that everyone would find it pleasant and profitable.

Report of the President—This brief report was read by the Executive Secretary and referred the Council to the minutes of the three Executive Board Meetings held during the year.

Report of the Treasurer—Louis I. Dublin, Ph.D., Treasurer, called attention to the growth of the Association as measured by the income and expenditure and increase in assets.

Report of the Executive Secretary—A 5-year report was presented in abstract. (The full report will be sent to members.)

Committee on Administrative Practice—The report presented by Professor C.-E. A. Winslow was accepted. (This report will be published in a later issue of the JOURNAL.)

Committee on Dairy Products—A progress report was presented by William H. Park, M.D., for Professor Henry C. Sherman, Chairman. The final report of the committee will be based on a report made in October by Leslie C. Frank to the U. S. Public Health Service, after several years' study.

Committee on Cancer—This report published in the November, 1927, issue of the JOURNAL, was accepted and the committee continued.

Federal Health Legislation — Some progress has been made in the movement for the coördination of the health activities of the national government, according to the report of James A. Tobey, Dr.P.H., secretary of the committee. At the hearings on the Parker Bill, the American Public Health Association was represented by Herman N. Bundesen, M.D., James A. Tobey, Dr.P.H., George W. Fuller and others. The Parker Bill has been endorsed by a number of influential national organizations. The Governing Council endorsed the recommendations that the Association advance the interests of the Parker Bill in every legitimate way at the 70th Congress of the United States. It was voted to continue the committee.

Committee to Speak for the Association on the Parker Bill—Herman N. Bundesen, M.D., Chairman, recommended that this committee be discontinued and its work transferred to the Committee on Federal Health Legislation. This recommendation was accepted.

Census of Public Health Workers—A plan for making a census of public health

workers outlined by the Executive Secretary was approved. Upon the recommendation of the Executive Board a committee for directing the census will be appointed by the Governing Council.

Election of Fellows—Thirty-eight applications for Fellowship were approved.

OCTOBER 18

Registration Fee for Members of the Association—A proposal to charge a registration fee for members attending the annual meetings was tabled.

Petitions of State Health Societies for Affiliation—The applications of the Ohio Society of Sanitarians, the Northern California Public Health Association and the Southern California Public Health Association were approved. The applications of the Connecticut Public Health Association and the South Carolina Public Health Association were approved subject to these societies complying with the membership requirements.

Committee to Coöperate With the Director of the Census—The President was authorized to appoint a committee of three to act as an advisory committee to coöperate with the Director of the Census in regard to vital statistics.

Editorial Committee—Homer N. Calver, managing editor, reported that the JOURNAL will appear in a new format.

Commissioning of Sanitary Engineers—In reporting for this committee, George W. Fuller, Chairman, said that $25,000 had been restored to the budget of the U. S. Public Health Service to cover traveling expenses of engineers and to transport their families. The committee was continued.

Committee on Eligibility—The Executive Secretary reported that the applications of 3 societies for affiliation had been approved and that of 51 applications for Fellowship, 38 had been approved.

Council on Standards—The report which included a proposed policy and scope of activities of the committee and routine procedure for Association committee reports and Section committee reports was accepted.

Annual Meeting Policy—The report of the Finance Committee to which this matter had been referred by the Executive Board was accepted. The report recommended that the continent be divided into 7 districts in which the Association may meet in rotation.

A list of cities in each district in which annual meetings could be held was submitted and a plan for selecting the annual meeting cities was suggested.

The executive office was instructed to assist in the development of regional meetings where desired by the members.

OCTOBER 19

Committee on Industrial Health Service—The recommendations read by W. S. Rankin, M.D., Chairman, were accepted; namely,

First, that the committee be continued as a sub-committee of the Committee on Administrative Practice.

Second, that the membership of the committee be increased.

Third, that the Sub-committee on Industrial Health Service prepare a form for the collection of the essential data with respect to health conditions and health services of industries.

Fourth, that industries be served as a part of the general program of community health service.

Committee on Resolutions—The Resolutions, read by Professor E. O. Jordan, as Chairman, were accepted. (See November, 1927, JOURNAL, pp. 1162–1164.)

Election of Officers—By written ballot, the following officers were elected for 1927–1928: President, Herman N. Bundesen, M.D.; First Vice-President, George W. Fuller; Second Vice-President, William H. Peters, M.D.; Third Vice-President, James Roberts, M.D.; Treasurer, Louis I. Dublin, Ph.D.

Collection and Maintenance of Information Concerning Health Officers—A suggestion for collecting and maintaining for health officers of the country, accurate information concerning costs, equipment, staffs, plans, etc., of health centers was referred to the Committee on Administrative Practice.

Association of School Physicians—A letter was read from the Association explaining its purpose and saying that the members who are also members of the American Public Health Association will endeavor to increase the membership of the Child Hygiene Section and desiring that two sessions be devoted to school medical service at the next annual meeting.

Advance Meetings of Executive Board—It was voted that so far as practicable individual members of the Governing Council be advised in advance of the major policies to be considered by the Executive Board.

OCTOBER 20

Change of Name of Food and Drugs Section—It was voted to amend the by-laws of the Food and Drugs Section changing its name to Food, Drugs and Nutrition.

Annual Meeting City for 1928—By written ballot Chicago was chosen as the annual meeting city for 1928.

Elective Councilors—Members elected to the Governing Council, terms expiring 1930, were: John W. Amyot, M.D., George W. Bigelow, M.D., Walter H. Brown, M.D., Herman N. Bundesen, M.D., Edwin O. Jordan, Ph.D., W. S. Leathers, M.D., John E. Monger, M.D., Matthias Nicoll, Jr., M.D., Professor C. E. Turner and C.-E. A. Winslow, Dr.P.H.

OCTOBER 20

New Governing Council Meets—The meeting of the new Governing Council was called. The only business transacted was the election of the following members to the Executive Board, terms expiring 1929: A. J. Chesley, M.D.; John E. Monger, M.D., and Professor C. E. Turner.

EXECUTIVE BOARD MINUTES

OCTOBER 16

Report of Association Committees—(See digest of Governing Council Meeting minutes on page 74 of this issue.)

Public Health Year Book—The plan of this book presented by Arthur Tomalin, was referred to the Finance Committee for further study of its practicability and means of underwriting it.

New Publication—In principle the establishment of a new publication was approved. The executive office was instructed to negotiate for the purchase of *The Nation's Health*.

Reports of Representatives and Delegates of the Association—These reports were accepted.

Delinquent Members—The names of 136 members and Fellows delinquent in payment of dues for 12 or more months were stricken from the Association membership roll.

Membership Campaign and Census of Public Health Workers—A plan for an intensive membership campaign and a census of public health workers was approved and a sum was voted to defray expenses of this project. (See Governing Council proceedings on page 74 of this issue.)

Proposal from the American Institute—The Board expressed its sympathy with the projects of the Institute and recommended that the Institute seek the coöperation of the American Association for Medical Progress.

Proposal from Cleanliness Institute—It was voted to ask the President to appoint a committee on cleanliness and health with power to confer with section officers, the Cleanliness Institute and other bodies, and report back to the Executive Board.

National Tuberculosis Association—The campaign planned by the National Tuberculosis Association for the early diagnosis of tuberculosis was approved and coöperation promised.

Representatives to American Association for Advancement of Science—The President was authorized to appoint delegates from the Fellowship to represent the Association at the meeting of the American Association for the Advancement of Science at Nashville, Tenn., December 26-31, 1927.

AMERICAN CHILD HEALTH ASSOCIATION TO MEET AT SAME TIME AS AMERICAN PUBLIC HEALTH ASSOCIATION

THE American Child Health Association of which Herbert Hoover is president, will hold its next annual scientific meeting simultaneously with the Fifty-seventh Annual Meeting of the American Public Health Association and at the same place. This decision was made at the quarterly session of the Executive Committee of the American Child Health Association, December 2, 1927, according to a communication received from S. J. Crumbine, M.D., General Executive.

The A. C. H. A. will hold joint meetings with the Child Hygiene Section and the Public Health Nursing Section of the A. P. H. A., adding considerably to the strength and value of the sessions of these two sections particularly.

This plan was favorably accepted at the meeting of the Executive Board of the American Public Health Association held at the executive office, December 10.

The joint meeting will be held in Chicago, Ill., the week of October 15, with headquarters at Hotel Stevens.

STATE NEWS

TEXAS

Tenth Annual Waterworks School—The school will be in Houston, January 23–27 under the joint auspices of the Texas Section of the Southwest Water Works Association, Texas State Department of Health and the City of Houston. James H. B. House, Houston, is general chairman and W. S. Mahlie, Fort Worth, is director of the school.

Among the lecturers at the school will be: George W. Fuller, consulting engineer, New York, N. Y.; Jane Rider, state sanitary engineer, Arizona; Frank Bachmann, sanitary engineer, Chicago, Ill.; M. Z. Bair, state sanitary engineer, Little Rock, Ark.; Ernest Boyce, state sanitary engineer, Lawrence, Kas.; Arthur Brown, sanitary engineer, Chicago, Ill.; L. H. Enslow, research engineer, New York, N. Y.; Paul Fox, state sanitary engineer, Santa Fe, N. M.; and August V. Graf, city water superintendent, St. Louis, Mo.

Dr. J. C. Anderson, state health officer, is chairman of the Program Committee. Headquarters will be at the Rice Hotel.

Dr. Carrick's Appointment—Dr. Manton M. Carrick, city health officer of Dallas, has been appointed a director of the National Committee for Mental Hygiene.

Pampa Adopts Milk Ordinance—Pampa has adopted the Standard Milk Ordinance recommended by the Texas State Department of Health.

Resolutions of State Sanitarians—Among the resolutions adopted at the recent meeting of the State Association of Sanitarians held at Houston were:

That the Texas State Medical Association investigate the New Jersey plan for licensing health workers with the view of its adoption in Texas;

That arrangements be perfected for holding regional milk sanitation meetings in different parts of Texas in locations conducive to satisfactory attendance in order that the message of the benefits of sanitation may be brought direct to the people.

That inasmuch as the National Dairy Show is one of the most effective mediums for the stimulation of dairying and best business

methods, that efforts be made to bring this show to Texas in the near future.

Better Health Special Tours Texas—The Better Health Special, a coöperative accomplishment of the officials of the Missouri Pacific Railroad and the Texas State Health Department under the direction of Dr. J. C. Anderson, State Health Officer of Texas will visit 75 Texan cities. The train, carrying a health demonstration car, diner and observation Pullman for the lecturers and attendants will leave Longview, January 16.

Education in public health will be featured in the program of the Better Health Special. Rules of sanitation, malaria and typhoid control and other public health measures will be taught by lectures, motion pictures and exhibits. The train will carry an exhibit of modern dairy equipment. The program is arranged for adults and school children.

Dr. Durham, State Registrar, Dead—Dr. C. E. Durham, director, bureau of vital statistics, Texas State Department of Health, died in Austin, November 30, after a short illness. During his 4 years as state registrar, Dr. Durham had accomplished much toward bringing Texas into the birth registration area.

Dr. Durham was a graduate of the University of Texas and the Texas State Medical School. For 24 years he was engaged in the private practice of medicine in Texas.

MICHIGAN

Michigan Public Health Association Meets—The annual meeting of the Michigan Public Health Association will be held in conjunction with the Michigan Department of Health, January 11, 12, 13.

Communicable Disease Control, County Unit Plan, and the Present Status of Scarlet Fever are subjects to be discussed, the last to be presented by Guy L. Kiefer, M.D., State Health Commissioner.

NEW JERSEY

New Jersey Sanitarians Meet—Incorporation of the New Jersey Public Health and Sanitary Association was provided for in the new constitution and by-laws adopted at the Fifty-third Annual Meeting of the New Jersey Sanitary Association held at Princeton, N. J., December 2 and 3. The following officers were elected:

President, B. S. Pollak, M.D., Secaucus, N. J.; First Vice President, B. H. Obert, Asbury Park, N. J.; Second Vice President, H. B. Costill, M.D., Trenton, N. J.; Third Vice President, D. C. Bowen, Trenton, N. J.; Chairman of the Executive Council, Samuel B. English, M.D., Glen Gardner, N. J.; Representative to A. P. H. A., Edward M. Guion, M.D., Atlantic City, N. J.; Alternate, B. H. Obert, Asbury Park, N. J.

D. C. Bowen, director of health of New Jersey, and chairman of the executive council, presided at the opening meeting. Chester G. Wigley, C.E., Atlantic City, retiring president, in his address spoke on "Recent Progress in Sanitary Engineering Work in the State of New Jersey." Following a paper on "Pre-School Clinics" by Julius Levy, M.D., Consultant, Bureau of Child Hygiene, New Jersey State Department of Health, there was a discussion by E. I. Cronk, M.D., Health Officer of New Brunswick.

The influence of health departments in diphtheria control was discussed by Henry B. Costill, M.D., Trenton; F. P. Lee, M.D., health officer, Paterson; J. Bennett Morrison, M.D., Secretary, Medical Society of New Jersey—all representing the committee on the state wide anti-diphtheria campaign.

The paper "Relation of the Physician to the Patient from a Public Health Standpoint," by Walter Ponder Conaway, M.D., Atlantic City, president of the New Jersey Medical Society, was discussed by A. S. Stone, M.D., director of public health, Camden. Joseph R.

Morrow, M.D., superintendent, Bergen County Hospital, Ridgewood, led the discussion on "After Effects of the Use of Serums in the Human Economy."

W. W. Peter, M.D., Associate Secretary of the A. P. H. A. addressed the delegates to the meeting of the Health Officers Association of New Jersey, which was held December 3 in conjunction with the meeting of the sanitarians. A. S. Fell, M.D., presided.

WEST VIRGINIA

West Virginia Public Health Association—How non-professional workers can function in a state-wide health program was the subject of one session of the second annual meeting of the West Virginia Public Health Association, held at Morgantown, November 21–24. At this meeting of the Lay Section of the association the possibility of dovetailing their programs into the community health program was considered from the point of view of the churches, men's and women's clubs, sociological department and the farm extension division of the University of West Virginia, the rural school teacher, and the nutritionist.

Another session was given over to the Health Officers Section and the Public Health Nursing Section.

David Littlejohn, M.D., in his presidential address spoke on "West Virginia's Health Problems." A report of the milk survey in West Virginia was given by Clarence E. Smith, Associate Milk Specialist, U. S. Public Health Service; and H. M. Newton, M.D., federal officer in charge of bovine tuberculosis in West Virginia talked on "Tuberculin Testing of Cattle as a Factor in Producing a Safe Milk Supply."

Josephine Baker, M.D., of New York City spoke on the safeguarding of lives of mothers and babies in West Virginia and Miss Miriam Birdseye of the U. S. Department of Agriculture talked on "The Nutrition Program as Related to Public Health."

The association passed a resolution favoring the requirements of the Standard Milk Ordinance as recommended by the U. S. Public Health Service and favoring its adoption by the various municipalities of West Virginia.

Another resolution passed endorsed the correlated Country Life Program and recommended that the heads of departments of Agriculture Extension Service, the State Department of Health, the Division of Rural Schools and the State Department of Agriculture meet for the purpose of planning a Country Life Program to be published in bulletin form for the year 1928.

A health exhibit was held under the direction of Miss Dorothea Campbell, director, Division of Public Health Education, West Virginia State Department of Health.

W. T. Henshaw, M.D., Charleston, was elected as representative on the executive council of the A. P. H. A. The officers elected for 1928 were:

President, David Littlejohn, Charleston; 1st Vice-President, J. G. Pettit, M.D., Hopemont Sanitarium; and 2nd Vice-President, W. H. McLain, M.D., Commissioner of Health, Wheeling. Councillors: Marian D. Bell, Fairmont; Gertrude Eckhardt, Keyser; A. L. Oilar, M.D., Glenville; Grace Bauer, Parkersburg; Elizabeth C. Lowry, Logan; and John Thames, M.D., Charleston. Representative on Executive Council, A. P. H. A.: W. T. Henshaw, M.D., Charleston. Officers of the Lay Section elected were: President, Mrs. Dorsey R. Potter, Clarksburg; Vice-Chairman, Mrs. Alice C. Boomsliter, Morgantown; and Secretary, Mrs. John Stuart, Clarksburg.

Homer N. Calver, Executive Secretary and W. W. Peter, M.D., Associate Secretary of the A. P. H. A. attended the meeting. Dr. Peter was one of the speakers.

DR. JONES REAPPOINTED

Charles Hampson Jones, M.D., for 31 years in the service of the Baltimore, Md., health department, has been reap-

pointed health commissioner of that city. A testimonial dinner was given for Dr. Jones on December 1 by a group of professional colleagues, and he was presented with a gift of $500 in gold in appreciation of his conscientious and excellent services in the interest of the public's health. He is a Fellow of the A. P. H. A.

A. P. H. A. CHICAGO ANNUAL MEETING

BECAUSE of the action of Mayor Thompson of Chicago in curtly dismissing from office Health Commissioner Herman N. Bundesen, to replace him with the mayor's personal physician, widespread and bitter protest was received by the Executive Board of the American Public Health Association at its last meeting against holding the Fifty-seventh Annual Meeting of the Association in Chicago next October.

The protest took the form of a resolution offered by a large group of Fellows and members of the Association from different parts of the country in which it was said—"It is an affront to the public as well as a potential danger when the health officials are selected solely by the whim of political favoritism. Only well qualified sanitarians should be appointed to responsible positions in public health administration."

After lengthy consideration of the protest the Board, largely through the interposition of Dr. Bundesen, decided to go ahead with its plans for the meeting in Chicago.

NEW MEMBERS

The Borden Company, New York, N. Y. Sustaining Member

A. Cavaillon, M.D., Paris, France, Director Venereal Diseases Service (Assoc.)

Carlo Cerruti, M.D., Torino, Italy, Assistant to Professor of Hygiene Regia University (Assoc.)

James T. Cornelius, M.D., London, Eng., Assistant Professor of Hygiene (Assoc.)

Louis De Angelis, B.S., New Haven, Conn., Student Yale University Medical School (Assoc.)

Lee E. Edens, M.D., Austin, Tex., Director of Public Health & Welfare

Uarda Faine, Cleveland, O., Director Cleveland Nutrition Clinics

Mary Fischer, R.N., Cincinnati, O., Superintendent of Visiting Nurse Association

Jacob A. Goldberg, Ph.D., New York, N. Y., Secretary Committee for Health Service, New York Tuberculosis and Health Association

Melvin P. Isaminger, Dr.P.H., Ann Arbor, Mich., Instructor Department of Hygiene and Public Health, University of Michigan

G. C. Kelly, M.D., Louisville, Ky., City Health Officer

Clair V. Langton, D.P.H., Ann Arbor, Mich., Teacher and Statistician, Department of Public Health & Hygiene, University of Michigan

Mary L. Markel, Greencamp, O., Teacher

C. H. Michener, Philadelphia, Pa., Secretary and Treasurer Historical Publishing Company (Assoc.)

Iva M. Miller, M.D., Shanghai, China, Director Child Health Department of Council on Health Education

National Dairy Council, Chicago, Ill., Sustaining Member

Northern California Public Health Association, San Francisco, Calif. Affiliated State Health Society

Ohio Society of Sanitarians, Columbus, O. Affiliated State Health Society

Carrie Palmer, R.N., Hemet, Calif., District Public Health Nurse

Anne McF. Sharpe, M.D., Tallahassee, Fla., Professor of Hygiene, State College for Women

Otis Scripter, Ph.D., Zion Ill., Assistant Commissioner of Health

Southern California Public Health Association, Los Angeles, Calif. Affiliated State Health Society

Charles T. Whittier, B.A., New York, N. Y. Secretary, U. S. Manufacturers of Cream of Tartar

Herman F. Wiedeman, C.E., Atlanta, Ga., Sanitary Engineer

BOOKS AND REPORTS

Federal Health Administration in the United States—*By Robert D. Leigh, A Barton Hepburn Professor of Government, Williams College. New York: Harper,* 1927. 687 pp. Price, $5.00.

Here is a book which ought to be read by every one in any way interested in the important problem of federal health correlation, and it could be read to advantage by all who are concerned with public health administration. It is a thorough and scholarly treatise on the development, scope, and present functions of the health organization of our national government, a subject which has recently come to the fore as a result of the surveys and endeavors to secure Congressional action for the more effective coördination of these health activities. As a climax to his descriptions and discussions, the author offers a plan for the centralization of the federal health activities, proposing a new department of education and health, comprised of the Public Health Service, the Children's Bureau, and the Bureau of Education. In many respects, the principles which he sets forth in connection with the proposed reorganization correspond with the Parker bill in their essential features.

This book deals with federal health activities on a functional basis, rather than by the scheme of outlining in detail the activities of each of the many bureaus doing health work. It is, in fact, a philosophical discourse as well as a factual presentation. After introductory chapters on the evolution of American public health organization, and the federal health powers under the commerce, taxation, and other clauses of the Constitution, the author discusses the national medical care of merchant seamen; medical care and preventive medicine in the army and navy; the same for World War veterans, Indians, territorials and other wards; national quarantine against epidemic diseases; national health regulation of commerce; and such miscellaneous matters as vital statistics, scientific investigation, and education. He concludes with chapters on federal stimulation and aid; public health and the federal problem; the attempts at national health reorganization; public health and national administrative reorganization; and a particularly useful chapter on the personnel problem. Once or twice there seems to be a slightly undue amount of space devoted to venereal disease control.

The book is written in a readable and clear style. It is exceptionally well printed and arranged, though the notes would have been much more useful if they had been placed on each appropriate page, or at least at the end of each chapter, instead of having been assembled at the back. There is an excellent bibliography and also a good index. This important addition to the Harper Health Series is a notable accomplishment with respect to both form and substance.

JAMES A. TOBEY

Personal Health—*By Emery R. Hayhurst, M.D., Professor of Hygiene in Ohio State University and Consultant in Industrial Hygiene to the Ohio State Department of Health. New York: McGraw-Hill,* 1927. 278 pp. Price, $3.00.

Dr. Hayhurst is widely and favorably known to the public health profession, and this book should add still further to his recognition as a sound and constructive scientist and a progressive sanitar-

ian. He has undertaken the unusual and worthwhile in preparing a book to "serve the busy person in shop or office as a health guide and a medical advisor." His experience and standing in the field of industrial hygiene is unexcelled and he has drawn upon this wide experience for innumerable incidents and illustrations which add point and interest to the book.

The historical approach is used to introduce the discussion of health and health practices. The body of the book divides the subject of hygiene upon the following bases: digestive system, skin, breathing system, circulatory system, kidney, bladder and sex organs, muscles, bones and joints, nervous and mental health, eyes, ears, glands, cancer. There follow a chapter on the War Upon the Microbe, and a brief chapter containing general advice.

The book is well printed and attractively bound. The 64 photographic illustrations are well chosen. The English is fresh and to the point,—not classical.

The book should be useful to employers, foremen and workers. It deserves to be read. Teachers of adult classes or industrially employed groups should find this a clear, understandable and useful reference or text. C. E. TURNER

The Principles of Sanitation—*By C. H. Kibbey. Philadelphia: F. A. Davis Co.*, 1927. 354 pp. Price, $3.50.

This book has been prepared as a practical handbook for public health workers, especially for sanitary inspectors who may or may not have had technical training. The book is based upon a series of lectures and demonstrations given by the author to inspectors.

Chapters dealing with the cause and prevention of communicable diseases are largely non-technical in make-up, but give the essential facts for the group of readers for whom the book is primarily designed. As minor criticisms, the danger of transference through "fomites" perhaps receives greater emphasis than modern experience now justifies. Unfortunately, "ptomaine poisoning" is used without stating that this term is a misnomer; and the section dealing with food infections is somewhat brief in comparison with similarly important problems. But the book, as a whole, seems well balanced.

The third section, on modern methods of rural sanitation, appeals to the reviewer as the most valuable portion of the book. A section on the prevention of occupational diseases is also of practical value to inspectors and concludes this useful volume, which should prove helpful to many health officers, public health nurses and sanitary inspectors.

IRA V. HISCOCK

Preventive Medicine—*By Mark F. Boyd, M.D.*, 1927.

Influence of Sun Rays on Plants and Animals—*By C. G. Abbot. Illus.*, 1927.

Cold Light—*By E. Newton Harvey, Ph.D.*, 1927.

The History of Organic Evolution—*By John M. Coulter*, 1927.

The Mosquito Fish (Gambusia) and Its Relation to Malaria—*By David Starr Jordan. Illus.*, 1927.

The Parasite Element of Natural Control of Injurious Insects and Its Control of Man—*By L. O. Howard*, 1927.

William Bateson—*By T. H. Morgan*, 1927.

These pamphlets ranging from 5 to 20 pages, are reprints from the Smithsonian Institute Report for 1926, and have been prepared by the U. S. Government Printing Office, Washington, D. C., each bearing the Institute seal.

An Elementary Laboratory Guide in General Bacteriology—*By Harold J. Conn, Soil Bacteriologist, New York Agriculture Station: Chairman Committee on Bacteriological Technic, Society American Bacteriologists. Baltimore: Williams & Wilkins,* 1927. 165 pp. Price, $3.00.

The author's purpose as stated in the preface has been primarily to furnish a laboratory guide to accompany *Bacteriology,* by H. W. Conn and H. J. Conn; but he has given us a manual that should be welcomed by instructors in elementary classes in general bacteriology. The author is eminently qualified to appreciate the needs of the instructor as well as the student and has provided a guide in the general methods that constitute a foundation of both medical and agricultural bacteriological technic.

The book contains chapters on molds, preservatives, germicides and milk. An appendix has been added giving media and staining formulae, reference to literature on stains, and a brief discussion of hyroden-ion concentration. There is excellent material in this little book for demonstrations in applied bacteriology and it offers a valuable guide for instructors in bacteriology in nurses' training schools and technical schools.

C. C. YOUNG

Municipal and Rural Sanitation—*Victor M. Ehlers, C.E., and Ernest W. Steel, C.E. New York: McGraw-Hill,* 1927. 448 pp. Price, $4.00.

"As modern environment has become more complex, so has sanitation necessarily come to include a wider range of activities." Recognizing this fact, the scope of this book has been made comprehensive. The initial chapter explains communicable diseases. It is followed by discussions of excreta disposal, both with and without water carriage and then 50 pages are devoted to water, its treatment and the protection of its sources.

Next there are treated such subjects as refuse collection and disposal; the characteristics of mosquitoes, their control and the organization of campaigns against them; the control of flies and rodents; the sanitation of milk and other foods, and of schools, swimming pools, and tourist camps; housing with related chapters on plumbing, ventilation and lighting; and industrial hygiene.

In a miscellaneous chapter, hookworm and rabies control, comfort stations and barber shop sanitation are covered. The concluding chapters cover disinfection, vital statistics and public health organizations. In the appendix, representative ordinances on privies, mosquito control and milk sanitation are given.

On the whole, the treatment of the subjects is practical and there are numerous illustrations and diagrams. The book can be used as a text and should prove useful to sanitarians, city officials, inspectors and the like.

ARTHUR P. MILLER

The Microscopy of Drinking Water—*By George Chandler Whipple, Late Gordon McKay Professor of Sanitary Engineering, Harvard University. Revised by Gordon Maskew Fair, Assistant Professor of Sanitary Engineering and Melville Conley Whipple, Assistant Professor of Sanitary Chemistry, Harvard University. (4th ed. rev.) New York: Wiley,* 1927. 586 pp. Price, $7.00.

A book which has for nearly thirty years been a standard text and which has gone through four editions, needs little comment. Its reputation has been established. In regard to the present edition, it would be necessary only to state that it maintained the high type of excellence shown by the former ones, except for the fact that in the meantime we have had to lament the death of Professor Whipple; so the revision has been made by the Assistant Professor of San-

itary Engineering, and the son of the original author, who is Assistant Professor of Sanitary Chemistry.

The extension of the science to which this book is devoted has necessitated its enlargement and the addition of new chapters. Among these that on "Self Purification of Streams" should be especially mentioned. It is of great interest scientifically and has perhaps been too much overlooked as a practical aid in the past. The authors acknowledge assistance in the revision of certain chapters by men whose names assure us of accuracy and completeness.

The book is abundantly illustrated throughout, but mention must be made of the nineteen colored plates, which are of unusual excellence. A special index of the organisms shown is provided, and in the body of the book, sixteen keys are given to aid in their recognition.

Unquestionably this new edition will be welcomed by all interested in water examination, and like the others, it will take its place as a standard book of reference. The make-up of the book is of the usual high class which characterizes the output of the firm which has produced it. M. P. RAVENEL

Handbook on Positive Health—*Women's Foundation for Health, 370 Seventh Avenue, New York, N. Y.* Price, $1.50.

The 1928 revised edition includes two new chapters of remarkably fresh and practical material, one from Mary Swartz Rose, Ph.D., Teachers College, Columbia University, on food values; and the other from Lillian M. Gilbreth, Ph.D., Consulting Engineer, on the balancing of work and rest.

The contributors to the first edition, appearing also in the second, are: Professor E. V. McCollum, Johns Hopkins University, "Nutrition in Relation to Health"; Walter B. Cannon, M.D., Harvard Medical School, "The Heritage of Life"; William A. White, M.D., St. Elizabeth's Hospital, Washington, D. C., and Jessie Taft, Ph.D., Department of Child Study, Philadelphia, Pa., "Mental Health"; and E. C. Lindeman, New York School of Social Work, New York, N. Y., "Recreation." The interpretation of the health examination blanks, both medical and physical, and a chapter on good body mechanics are also carried from the first edition. E. H.

Rebuilding the Child. A Study in Malnutrition—*By Dr. Frank Howard Richardson. New York: Putnam,* 1927. 319 pp. Price, $2.00.

Dr. Richardson's new book on malnutrition is essentially practical. He considers the child as a whole, and the methods he advocates are described in an able and concise manner. These methods are based on sound principles and on his experience in private practice, in hospital clinics and in his own home rather than on current fads.

The author distinguishes two stages of fatigue and he places this factor at the head of that group of signs and symptoms called "malnutrition." This condition must be considered as a clinical entity. The causative factors of this condition are analyzed carefully and evaluated in a convincing way as a preliminary step to the methodical attack upon them in the treatment by which they may be combated and the child improved physically and mentally. The same methods help to maintain the child's health as near as possible at his individual optimum of function. The use of the height-weight-age relationship as one of a number of criteria of optimal physical fitness, is sane and in accord with the best medical practice. This aspect of physical fitness has been much abused by some non-medical workers having too limited a conception of the problem at hand.

Malnutrition cannot be cured by a

proper diet list alone, and the reason this is true is convincingly explained in Dr. Richardson's book.

Every parent and many physicians will profit by considering carefully the chapters on "fatigue," "faulty food habits," "school strain," "family strain," and the intimate relationship between "mentality" and "malnutrition."

It is made perfectly clear by the author that persistent effort on the part of the parent, with the child under periodic examination and supervision, treatment along the lines suggested, is productive of successful results in varying degrees, in a large percentage of cases. The author also states that some malnutrition cases do not seem to respond to any mode of treatment and are baffling and at times discouraging to those who are endeavoring to improve the patient's condition.

Dr. Richardson is frank and sincere and his explanations are clear and convincing. LEROY A. WILKES

Transactions of Fourth Annual Meeting of American Child Health Association—New York, 1927. 381 pp. Paper. Price, $3.00.

In these Transactions a clear picture is given of the advance made in the promotion of child health in the last few years by federal and state health and education departments, national organizations, and community groups.

One section of the Transactions is entitled "The Medical School and Child Health. Experience with courses in Preventive Pediatrics and Plans for Future Development," with contributions from faculty members of several leading universities, who are eminent in the field of public health and pediatrics. Reprints of this symposium and reprints of a few individual papers in the symposium can be obtained from the A. C. H. A., 370 Seventh Ave., New York, N. Y.

Another feature of the Transactions is a series of charts visualizing the progress made in child health in two decades. These charts offer interesting study and at a nominal price reproductions can be obtained in chart and slide form.

Outlines in Health Education for Women—*By Gertrude Bilhuber, D.P.H. and Isabelle Post, B.S. New York: Barnes & Co.*, 1927. 192 pp. Price, $2.00.

This book, designed particularly for use in teaching hygiene to college freshman women, consists of thirty-four outlines to cover a college course with periods twice a week. These outlines develop two major lines of interest: first, health promotion; second, disease prevention and control. The material is authoritative, clearly and practically presented, and freely illustrated. L. L. M.

Tierphysiologischen Uebungen—*By Dr. Paul Krüger. Berlin: Verlag von Gebrüder Borntraeger*, 1926. xxxv+ 518 pp. (180 figs.) Price, 30 Marks.

The fundamental values of the dynamic aspects of animal biology are well illustrated in this handbook for the experimental study of the vital processes and functions of the animal body. It is not a human physiology, although there is constant reference to human processes and functions. The method is a comparative one only in so far as it is necessary or significant to bring in modifications of fundamental processes. The aim of the author is very clearly to present as broad a view as possible of vital activities, and he uses the most available material or subject to illustrate each in turn. The treatment is physico-chemical in the main. Less attention than in most treatises is given to reproduction and to muscle-nerve physiology. Experimental morphogenesis is hardly mentioned.

The text is well illustrated and skillfully set up in differential typography

in condensed, terse, carefully subdivided sections. The treatment is well adapted both for laboratory use and for ready reference as a source book for the latest information on the physical and chemical processes in living substances and for the experimental methods of testing physiological processes of the simpler and more fundamental types. Every biologist should have the book at hand. It has three full indices and an exceptionally complete analytical table of contents.

C. A. KOFOID

Leitfaden zu Tierphysiologischen Uebungen—*By Dr. Paul Krüger. Berlin: Gebrüder Borntraeger,* 1927. 92 pp., (29 figs.) Price, 3 Marks.

This laboratory guide is intended to accompany the author's *Tierphysiologische Uebungen.* It contains brief and exact directions for the experiments in the physico-chemical foundations of biology, the substrate of vital phenomena and the widely varied phenomena themselves. All biologists will find this booklet useful as a reference work on many biological tests and a source for many suggestive experiments illustrating important principles. C. A. KOFOID

The Medical Department of the Army—*By James A. Tobey. Baltimore: Johns Hopkins Press,* 1927. 161 pp. Price, $1.50.

The Institute for Government Research, a nonpolitical and extra-governmental association of citizens interested in correct administration of our body politic, has recently published its forty-fifth monograph on the operations of various administrative agencies of the United States.

This monograph, which was prepared for the Institute by James A. Tobey, recites in brief the history, activities and practical organization of the Medical Department of the Army.

The foreword of the booklet contains this statement: "The monographs will serve the double purpose of furnishing an essential tool for efficient legislation, administration and popular control, and of laying the basis for critical and constructive work on the part of those upon whom responsibility for such work primarily rests." The current monograph adequately and competently fulfils this purpose.

The history depicts the gradual upbuilding, from fragmentary beginnings in 1775, of a great agency of usefulness and mercy. The story is well told, although only the salient facts can be recounted in a work of such limited scope.

The manifold and diverse activities required of the Army Medical Department could not possibly be appreciated by anyone, except by long actual experience or through the medium of such a monograph. Therefore this book will be valuable to all interested in the subject. It will prove useful to medical officers of the army, for it constitutes a comprehensive survey in a convenient form.

The outline of organization affords a broad view of the operations of the department. Divided as it is into Medical, Dental, Veterinary, Administrative and Nurse Corps, with a large force of enlisted and civilian personnel, its functions cover wide fields of endeavor. Its numerous hospitals, dispensaries for treatment and laboratories for diagnosis and research; its schools for basic and post-graduate instruction; the necessity for the maintenance of elaborate records, for the procurement of the thousands of items of supply, for the prevention of disease and for the development of plans against possible emergencies (including immediate aid in public disasters); its great museum and greater library—all these and more require a personnel trained in multifarious ways, of which the monograph presents a clear and accurate picture. F. R. KEEFER

Health Behavior—*Thomas D. Wood, M.D., Professor of Health Education at Teachers College, Columbia Univ., and Marion Olive Lerrigo, Ph.D., Staff Associate American Child Health Association. Bloomington, Ill.: Public School Publishing Co.*, 1927. 150 pp. Price, $2.00.

Here is a book which will prove of definite value and usefulness in the preparation of a course of study in health education. Teachers and supervisors of health education will find it a valuable reference if they are working in communities which have not developed a detailed health education outline. Health officers will find it of value in presenting a picture of the desirable scope of health education at each age level.

The book consists of six scales each presenting the health habits, attitudes and knowledge which should be acquired by the individual at a particular age level. Scale one presents the habits, attitudes and knowledge which should be acquired by the child before entering kindergarten; scale two by the end of grade 3; scale three by the end of grade 6; scale four by the end of grade 9; scale five by the end of grade 12; scale six those appropriate for adults. These scales have been prepared by accumulating, from literature and public health experience, a complete list of the health problems which confront us and the habits, attitudes and knowledge necessary to solve these problems. From this complete list, the objectives which may reasonably be reached at the various age levels have been determined. The basis of progression recognizes: (1) the needs of the individual, (2) his increasing responsibility, and (3) his interest in an increasingly wider community. Each scale separates the new or changed objectives from those which appear in earlier scales, and it treats separately the habits and skills, the attitudes and the knowledge.

The work is well done and the book is attractively made. It is, of course, a statement of objectives for the teacher and not a textbook for the child. It is not a grade by grade program but rather it groups together objectives for three or more years in each scale. While there might be points of minor difference, there would be essential and general agreement among health education experts upon the soundness of the material.

C. E. TURNER

Feeding Your Baby. Diet for the Child During the First Six Years.

Out of Babyhood Into Childhood. A Health Talk to Parents of Children from Two to Six.

Tuberculosis.

Published by the Metropolitan Life Insurance Company.

These booklets are based on authoritative facts. They can be obtained by writing to the Welfare Education Division, Metropolitan Life Insurance Company, 1 Madison Avenue, New York, N. Y.

After the Rain—*By Grace T. Hallock. New York: Cleanliness Institute.* 1927. 96 pp.

In her usual attractive manner Miss Hallock narrates the cleanliness customs of children in France, Japan, Italy, England, Poland, Finland, Africa and Holland. The book offers material for the story teller at home or in the children's library, and for the primary teachers. It is unfortunate that the illustrations are not comparable with the art displayed in the telling of the story. This book can be obtained by writing to the School Department, Cleanliness Institute, 45 East 17th Street, New York, N. Y.

HEALTH DEPARTMENT AND OTHER REPORTS

IRA V. HISCOCK

England and Wales—The 1926 report of the Chief Medical Officer is a volume of considerable interest to public health administrators. The report contains 281 pages, including appendices, printed on good soft paper in readable type. Several statistical tables and graphs add to the value of this annual statement, but it is particularly noteworthy to find in an annual health report so much interesting and suggestive descriptive text. A somewhat detailed table of contents occupies 2 pages, making it possible to refer readily to special topics.

The estimated population of England and Wales in 1926 was 39,067,000. The population data are analyzed by age and sex, and the growth of total population is shown in tabular form for previous years beginning with 1871. A birth rate of 17.8 represents a decline of 7.7 per 1,000 since 1920. Infant mortality rates of 70 for 1926, of 76 for 1921–25 and of 149 for 1871–1880 are recorded. Diseases of the heart and cancer were the leading causes of death with rates of 142 and 117 respectively. The statistical tables are worthy of careful study and may be used as models by those preparing annual reports. Data are presented to show that by sickness and invalidity, there was lost to the nation in the year, among the insured population only, and excluding the loss due to sickness for which sickness or disablement benefit is not payable, a total of 28¼ million weeks' work, the equivalent of 12 months' work of upwards of 540,000 persons.

The figures relating to smallpox for the last 10 years show an increase in the number of cases and a decline in the number of deaths, with a case fatality rate in 1926 of 0.15 per cent (10,141 cases). Isolated outbreaks of the severe type, however, still continue to occur. A statistical study of the recent history of diphtheria in London suggests that the apparent decline in the fatality of this disease may be due, in part, to greater care in the notification of mild or merely suspicious cases.

A careful analysis of maternal mortality shows a rate of 4.12 per 1,000 births registered, with 1.02 deaths of women not classed to pregnancy and child-bearing but returned as associated therewith. "Antenatal supervision is the true preventive midwifery; unfortunately, its general application is a question of the gradual education of a generation unaccustomed to regard the ailments of pregnancy as potential dangers, or to realize how much can be done to avoid subsequent disaster by intelligent anticipation and preparation. . . . There are now 722 centers at which antenatal work is known to be carried out."

"The progress of a nation's health is a secular movement, that is a passage through the centuries, and founded mainly upon an exclusive regard to the immediate interests and problems of human survival.—We who are the medical or administrative servants of this undertaking must not allow ourselves to become customary or routine in thought, action or outlook."

Hartford, Conn.—The annual reports of the Hartford Board of Health for 1925 and 1926 are published together in a volume of 28 pages. Following a page devoted to the board organization, is the financial statement which indicates total expenses for 1926 of $161,307 as compared with $170,371 in 1925, the

reduction being due to lowered isolation hospital costs.

A population of 164,228 in 1926 is noted, with a death rate corrected for residence of 10.57. A death rate of 53 from tuberculosis, all forms, is noteworthy. A birth rate of 20 and an infant mortality rate of 72 are reported. Approximately 50 per cent of the resident births occur in institutions, and 7 per cent of the births are attended by midwives.

The Visiting Nurse Association is employed by the board to carry on the child welfare work with infants and preschool children. There are 11 stations, 6 of them being in school buildings. The numbers of home visits by the nurses was 35,994 in 1925 and 32,256 in 1926. The number of visits to clinics was 12,771 in 1925 and 16,992 in 1926. The supervision of tuberculosis cases by a department of the Visiting Nurse Association, while financed by the Community Chest, works also in close cooperation with the Board of Health. The Hartford Dispensary operates two clinics for the examination of adult tuberculosis cases, and a third clinic for children is maintained at Mitchell House—the State Tuberculosis Commission furnishing a physician, the Visiting Nurse Association, the nursing assistance, and the Board of Health, the maintenance charge.

Richmond County, N. C.—This county of 35,000 people has a board of health of 5 members and a staff consisting of a medical health officer, a nurse, and a stenographer-clerk. The report for 1926 indicates that this is a progressive agricultural and manufacturing center where cotton and peaches are grown extensively, although there is a diversification of farm products.

The county health department is maintained jointly by the state and county, the total appropriations amounting to $8,100. A condensed resume of 1926 gives the cost equivalent valuation system in vogue in North Carolina. It is calculated that during the year, $7,263.75 was expended; that the total cost equivalents, in services rendered, produced $17,523.57; giving the earning per dollar invested during the year as $2.41. These services consisted of immunization, medical and nursing visits, infant and maternal hygiene work, laboratory work, and regular health department activities. The program for 1927, outlined on the last page of the report, includes the inoculation of all children from 6 months to 16 years of age with toxin-antitoxin, and Schick tests of all that have been previously inoculated.

League of Nations—The annual report of the health organization for 1926 shows that 3 sessions of the health committee were held during the year. The actual expenditure (in Swiss francs) in 1925 amounted to 1,544,132, and the estimated expenditures for 1926 are only slightly higher than this figure. During the year particular attention was devoted to the reception and dissemination of weekly telegraphic epidemiological intelligence and of information in regard to the movement of infected ships. These reports have proved to be of enormous interest and value in various sections of the world.

Progress is being made in the standardization of morbidity and mortality statistics, and in the revision of the *International List of Causes of Death*. A group of administrative statistical experts have been invited to sit on the Health Committee to consider the latter problem. An impressive list of epidemiological and statistical publications of the Health Organization is contained in this annual report, together with an account of the work of the various Commissions. These Commissions represent a broad scope of interest, including malaria, permanent standards (sera, drugs, tests), sleeping sickness, opium, cancer,

tuberculosis, public health training, and smallpox and vaccination.

Cleveland, O.—The Cleveland 1926 report contains 34 valuable statistical tables, a map showing the health districts and the location of health stations, together with descriptive text. The death rate was 11.07, and the birth rate was 20.4. Over 47 per cent of all births were registered from either maternity hospitals or in the maternity wards of general hospitals. An infant mortality rate of 71.2 is recorded. It is noteworthy that 35,699 visits were made to infant welfare stations. The average attendance per clinic has increased from 12.9 in 1920 to 14.3 in 1926. A plan to provide protection against diphtheria for children under school age through infant welfare stations has been inaugurated.

BOOKS RECEIVED

HEALTH PROBLEMS IN ORGANIZED SOCIETY. By Sir Arthur Newsholme. London: King & Son, 1927. 253 pp. Price, $3.60.

AN ELEMENTARY LABORATORY GUIDE IN GENERAL BACTERIOLOGY. By Harold J. Conn. Baltimore: Williams & Wilkins, 1927. 165 pp. Price, $3.00.

DICTIONARY OF BACTERIOLOGICAL EQUIVALENTS. By William Partridge. Baltimore: Williams & Wilkins, 1927. 141 pp. Price $4.00.

KEEPING WELL. By Kate Platt. London: Faber & Gwyer, 1927. 246 pp. Price, $1.25.

HEALTHY CHILDHOOD BETWEEN INFANCY AND SCHOOL AGE. By Mary E. Weston. London: Faber & Gwyer. 135 pp. Price, $1.10.

AFTER THE RAIN. CLEANLINESS CUSTOMS OF CHILDREN IN MANY LANDS. By Grace T. Hallock. New York: Cleanliness Institute. 96 pp. Limited free distribution.

THE RISE AND FALL OF DISEASE IN ILLINOIS. Vol. 1. By Isaac D. Rawlings, M.D. Springfield: State Department of Health. 432 pp.

PROCEEDINGS OF THE CONFERENCE OF SOCIAL WORK, FIFTY-FOURTH ANNUAL SESSION, held in Des Moines, Iowa, May 11-18, 1927. Chicago: University of Chicago Press, 1927. 736 pp.

OUR TIMES. AMERICA FINDING HERSELF. By Mark Sullivan. New York: Scribners, 1927. 668 pp. Price, $5.00.

FOOD AND DIETETICS. By Robert Hutchison. (6th ed.) New York: Wm. Wood, 1927. 610 pp. Price, $5.00.

TOBACCO AND PHYSICAL EFFICIENCY. A Digest of Clinical Data. By Pierre Schrumpf-Pierron, M.D. New York: Hoeber, 1927. 134 pp. Price, $1.00.

AMERICAN ILLUSTRATED MEDICAL DICTIONARY. (14th ed.) By W. A. Newman Dorland. Philadelphia: Saunders, 1927. 1388 pp. Price, $7.00. Thumb Index, $7.50.

INTERPRETERS OF NATURE. By Sir George Newman. New York: Oxford University Press, 1927. 296 pp. Price, $4.50.

FIGHTERS OF FATE. By J. Arthur Myers. Baltimore: Williams & Wilkins, 1927. 318 pp. Price, $3.00.

MODERN METHODS OF TESTING MILK AND MILK PRODUCTS. (3rd. ed. rev.) By Lucius L. Van Slyke. New York: Orange Judd Pub. Co., 1927. 344 pp. Price, $2.00.

LISTER AS I KNEW HIM. By John Rudd Leeson. New York: Wm. Wood, 1927. 212 pp. Price, $3.50.

TOWARD THE LIGHT. By Mary Fels. New York: George Dobsevage, 1927. 281 pp. Price, $2.50.

NUTRITION AND HEALTH. With Twenty Suggested Lessons for Nutrition Classes. By Helen Rich Baldwin. New York: The Borden Co., 1927. 104 pp.

THE DIABETIC LIFE. Its Control by Diet and Insulin. (3rd ed.) By R. D. Lawrence. Philadelphia: Blakiston, 1927. 185 pp. Price, $2.50.

ANNALS OF THE PICKETT-THOMSON RESEARCH LABORATORY. Vol. III (Complete) November, 1927. Published by The Pickett-Thomson Research Laboratory, St. Paul's Hospital, Endell St., London, W.C.2, Eng. (Williams & Wilkins distributors.) 316 pp. Price, $10.00.

THE NORMAL DIET. By W. D. Sansum. (2d ed.) St. Louis: Mosby, 1927. 136 pp. Price, $1.50.

USE AND TESTING OF SPHYGMOMANOMETERS. By J. L. Wilson, H. N. Eaton, and H. B. Henrickson. Technologic Papers of the Bureau of Standards, No. 352. Washington: Department of Commerce. 764 pp.

STUDIES OF THE EFFICIENCY OF WATER PURIFICATION PROCESSES. Public Health Bulletin No. 172. Washington: Government Printing Office, 1927. 423 pp.

CLINICAL AND ABNORMAL PSYCHOLOGY. By J. E. Wallace Wallin. New York: Houghton Mifflin, 1927. 649 pp. Price, $3.00.

ABOUT OURSELVES. Psychology for Normal People. By H. A. Overstreet. New York: Norton, 1927. 300 pp. Price, $3.00.

THE HUMAN BODY. By Logan Clendening. New York: Knopf, 1927. 399 pp. Price, $5.00.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

The Bacteriophage Again—An involved discussion of the plurivirulence and the complexity of the bacteriophage, from which final conclusions as to the nature of the phenomenon remain unannounced in this, the first part of a lecture.

BRUYNOGHE, R. The Twort-D'Herelle Phenomenon. J. State Med., 35:11 (Nov.), 1927.

Sewage Tank Design—The majority of sewage settling tanks are inefficient. They should be built to obtain an even distribution of flow at both inlet and outlet ends, and about four times as long as wide. Although baffles may be helpful, they are more often detrimental.

CAPEN, C. H., JR. Study of Sewage Settling Tank Design. Eng. News Rec., 99:21 (Nov. 24), 1927.

Dental Hygiene—A British summarization of the causes of dental decay—a chemico-parasitic theory. The fermentation of starches and sugars about the teeth is the alleged cause. Induce children to banish sweets, eat roughage, and "swill" (rinse) the mouth after eating, and all will be well.

COLYER, F. The Prevention of Caries in Children. J. Roy. San. Inst., 48:5 (Nov.), 1927.

Cereal Diets—White rats fed suitable supplementary foods made normal growths when 84 per cent of the calories were obtained from whole grain cereals. The authors conclude that cereals might be used to a much greater extent in human diets than is customary in America.

COWGILL, G. R., et al. Studies on the Effects of Abundant Cereal Intake. J. A. M. A., 89:21 (Nov. 19), 1927.

Comparison of Diphtheria Immunity—Diphtheria and scarlet fever are much lower in incidence in Rio de Janeiro than in the United States cities, yet the prevalence of immunity to these diseases, as revealed by tests, is higher. The authors interpret this to mean that infection is more common in the former place.

DOULL, J. A., et al. Common Infectious Diseases in Brazil. (and) Results of Schick and Dick Tests in Rio de Janeiro. J. Prev. Med., 1:8 (Nov.), 1927.

The Vitamins—A brief summarization of the present-day knowledge regarding vitamins.

EDWARDS, M. M. The "Little Things" that Nourish Our Body. Pub. Health Nurse, 19:11 (Nov.), 1927.

Gelatin in Ice Cream—Samples of gelatin tested bacteriologically indicated that some lots might affect the bacterial count of ice cream made from cream of low bacterial content. But when added to a mix of high bacterial content (especially when the mix is later to be pasteurized), no appreciable difference in the count should result.

FAY, A. C., and OLSON, N. E. The Effect of Gelatin on the Bacterial Content of Ice Cream Mix. J. Bact., 14:5 (Nov.), 1927.

Modified Measles—This is a report of the use of serum from family donors, when convalescent serum is not available, to modify measles in young contacts.

FORBES, R. P., and BERRYMAN, G. Modified Measles. J. A. M. A., 89:19 (Nov. 5), 1927.

Food Fads—The dietary commandments of the food faddists are given a scorching going over that reduces them to absurdity. This is an excellent paper to stimulate the sanitarian to find out what is really known about nutrition.

HARDING, T. S. Common Food Fallacies. Scientific Monthly, (Nov.) 1927.

Tularaemia in Ticks and Bedbugs—A description of the microscopic changes in ticks and bedbugs infected with tularaemia. The epithelial cells of the gut were found swollen and packed with organisms. Organisms could not certainly be identified in salivary glands and a number of other organisms.

FRANCIS, EDWARD. Microscopic Changes of Tularaemia in the Tick *Dermacentor andersoni* and the Bedbug *Cimex lectularius*. Pub. Health Rep., 42:45 (Nov.), 1927.

Hookworm Prevention—Wholesale treatment for hookworm infestation without sanitation to prevent its continuance resulted in reinfestation in one year of considerable proportions, indicating that in three years the infestation would have reached its previous level.

HILL, R. B. Hookworm Infestation in an Unsanitated District After an Intensive Treatment Campaign. J. Prev. Med., 1:8 (Nov.), 1927.

Activated Sludge Sewage Disposal Plant—Experience in operating the Essen sewage disposal plant indicated the value of adding water heated to 70–80° F. directly to the sludge at the bottom of the digestion tank during cold weather in order to stimulate bacterial action.

IMHOFF, K. Operating Results of the Essen Activated-Sludge Plant. Eng. News-Rec., 99:20 (Nov. 17), 1927.

Syphilis Precipitation Tests—The "pros" of the Kahn precipitation test for syphilis—including the claims of marked specificity, sensitiveness, simplicity, and freedom from error—are presented again by Dr. Kahn. Some of the "cons" are suggested by the discussers of the paper.

KAHN, R. L. Five Years Application of the Kahn Test. J. A. M. A., 89:22 (Nov.), 1927.

Public Health Nursing—The nursing program of the New York State Department of Health is interestingly told in this brief paper. An excellent statewide nursing scheme.

KUHLMAN, M. S. New York State Public Health Nursing. Nation's Health, 9:11 (Nov. 15), 1927.

Studying Juvenile Delinquents—This discussion of the procedure for studying delinquent children will be of interest to all health officials who have any social problems to face—and this should include all officials except, perhaps, plumbing inspectors.

MCIVER, J. The Juvenile Delinquent. J. A. M. A., 89:19 (Nov. 5), 1927.

Posture Studies—A correlation is shown between defective posture and pathologic conditions of the female genital organs. This is another reason for including correct posture among the rules of hygiene.

MILLER, N. F. Posture Studies in Gynecology. J. A. M. A., 89:21 (Nov. 19), 1927.

Do Adults Contract Tuberculosis?—When one of the consorts died of tuberculosis the mate was found to be infected in half the cases. The author concludes that with mass infections and lowered resistance adult infection is frequent.

MINNIG, ARNOLD. Conjugal Tuberculosis. J. A. M. A., 89:21 (Nov. 19), 1927.

What to Eat—The keynote of a successful diet is variety—always including milk and green vegetables. Good material presented in a usable form for the sanitarian who is trying to educate.

NEWMAN, SIR GEORGE. The Relation of Food to Health. Better Health (British), 1:2 (Nov.), 1927.

Industrial Mortality—A study of available statistics indicates that tuberculosis is declining as a cause of death of workers, and that it is superseded by cardiac conditions.

PEDLEY, F. G. The Trend of Occupational Mortality in the United States. J. Indust. Hyg., 9:11 (Nov.), 1927.

Eugenic Sterilization—Another paper of a series dealing with the sterilization of defectives; this paper shows

the increase of first admission sterilizations, particularly single women. It should be done early to prevent the birth of defective children.

POPENOE, PAUL. Eugenic Sterilization in California. J. Soc. Hyg., 8:8 (Nov.), 1927.

Sex Differences in Tuberculosis—More females than males die of tuberculosis during the ages 5–24 (maximum 10–14). Probably the causes are biological; the reasoning by which this conclusion is reached is interestingly presented.

PUTNAM, PERSIS. Sex Differences in Pulmonary Tuberculosis. Am. J. Hyg., 7:6 (Nov.), 1927.

Trends in Typhoid Mortality—The accelerated trend of the typhoid fever decline beginning during the latter part of the 19th century to date. The present-day importance of carriers is discussed.

PUTNAM, PERSIS. The Trend of Typhoid Fever Mortality in the United States. *Ibid.*

Maternal Transmission of Hypersensitiveness—The first papers of this series review the findings of others in studies of the transmission of hypersensitiveness from mother to offspring through the placenta and through colostrum and milk. The last papers report studies of the guinea pig which support the hypothesis that human infants manifesting an allergic state have been sensitized in the uterus of the mother.

RATNER, BRET, et al. Transmission of Protein Hypersensitiveness from Mother to Offspring. J. Immunol., 14:5 (Nov.), 1927.

Testing for Carbon Monoxide—A report on the use of the Sayres-Yant method for the determination of carbon monoxide in garages, and a description of the apparatus used.

SALLS, C. M. Carbon Monoxide Tests in Commercial Garages and Automobile Repair Shops. Ind. Hyg. Bull. (N. Y. State Dept. of Labor), 4:5 (Nov.), 1927.

Measles Management—An interesting description of the care of measles cases in cubicles. The nursing technic which prevents cross infections is described.

SPENCER, H. J. The Management of Measles in Hospital and Home. J. A. M. A., 89:20 (Nov. 12), 1927.

Radio Health Talks—An attempt to evaluate a series of health talks given from Syracuse. A questionnaire was broadcast and a prize offered for the best answer. Fifty-five replies were received, from which it is estimated that 5500 people listened to the talks.

STONE, J. G. Radio Health Education Talks and Their Results. Nation's Health, 9:11 (Nov.), 1927.

Child Welfare—This is a brief discussion of the infant welfare program adopted by the City of Winnipeg. Nothing new.

TUSTIN, P. B. Child Welfare Work in Winnipeg, Canada. J. Roy. San. Inst., 48:5 (Nov.), 1927.

Health Improvement vs. Disease Prevention—An interestingly presented suggestion that health measures may be of immediate benefit to the individual yet react unfavorably upon public health in the long run. This paper should be reprinted in an American publication so that all might read the author's plea for health official participation in all social activities leading to the *improvement of health* as well as disease prevention.

WHEATLEY, J. Relative Values in Health Work. Pub. Health, 51:2 (Nov.), 1927.

Mental Hygiene Defined—The inclusiveness of the mental hygiene field, the need for expertly trained leaders and workers, and the possibilities are considered.

WILLIAMS, F. E. Mental Hygiene: An Attempt at a Definition. Pub. Health Nurse, 19:11 (Nov.), 1927.

PUBLIC HEALTH ADMINISTRATION

HENRY F. VAUGHAN, D.P.H.

Epidemiology of Diphtheria—Dr. James A. Doull of Johns Hopkins University presents an outline of the epidemiology of diphtheria in the *Nations Health* for November, 1927. He summarizes his discussion with the following:

1. With rare exceptions the sources of infection in diphtheria are entirely human, namely, cases and carriers.
2. The ordinary mode of infection is directly from person to person.
3. Children are more liable to attack than adults because the latter are more commonly immune.
4. The lower prevalence of the disease in the tropics is due either to a higher degree of natural resistance possessed by the inhabitants or to the bacillus losses in virulence in the warm countries.
5. The lower rates in rural than in urban areas may be explained by less opportunity for contact in the former and a consequently lower infection rate.

As methods of prevention the author stresses: (1) the need of active immunization, (2) isolation, and (3) specific treatment as early as possible.

Cancer Division in Detroit—The *Bulletin* of the Wayne County Medical Society for November 29, 1927, contains the first preliminary report of the Cancer Division of the Detroit Department of Health, which division was established 6 months ago.

During the first 4 months' operation of the newly created division there was a total of 307 deaths from cancer. Of this number 85 occurred from cancer of the stomach. Early and radical operation is the only possible cure for stomach cancer. Of the first 50 deaths, 11 were operated upon, and in four instances an exploration was made. Cases of stomach cancer when discovered are often too far advanced for surgical interference. The report estimates that somewhere between 40 and 50 per cent of stomach cancer can be recognized soon enough, and are in proper location for radical removal. This is far from the hopelessness which we feel today, but it will only be realized when all indigestions, especially in middle life, are carefully investigated with the X-ray, and operations undertaken without delay if suspicion of cancer exists.

Approximately one-third of the deaths studied in this report were operated upon. Breast cancers were operated upon with the greatest frequency.

The Cancer Division of the Detroit Department of Health is under the direction of Dr. Harry C. Saltzstein, who has medical and nursing assistance. It is now engaged in surveying deaths from cancer, but plans to extend its studies to cases. The program of the department includes stimulating attendance at cancer clinics for early diagnosis, the establishment of a suitable number of hospital beds for early and advanced cases; the education of the public through pamphlets, newspaper articles, and lectures; and the instruction of practicing physicians through clinics and lectures.

League of Nations Epidemiological Report—The *Fourth Epidemiological Report of the Health Section of the League of Nations* for the year 1926 has just appeared. This fourth report is presented in a different form from that of the previous reports. The tables were formerly arranged so as to show each country separately, but now all information is grouped according to disease.

Information on the prevalence of notifiable diseases is now received by the Health Section from practically all countries where such information is collected. The report contains a general view of the prevalence of the infectious diseases throughout the world, together with tables of general mortality, birth rates, infant mortality, and deaths from certain specified causes in large towns.

In discussing the general decline in the diphtheria death rate credit is given to toxin-antitoxin immunization, but mention is also made of the fact that the decrease may be at least partly due to the diminished proportion of children in the population due to the falling birth rate. In the United States the decrease, which had been about 24,000 cases a year between 1922 and 1925, diminished to only 3000 from 1925 to 1926. It is suggested that the reason may be that a new natural rise of the incidence is due, but is nearly checked by the preventive measures.

Scarlet fever is rare in tropical and sub-tropical countries. In Egypt, for example, there were only 6 deaths from scarlet fever in 1926, compared with 617 from diphtheria, and 9149 from measles. Scarlet fever is fairly prevalent in Northern China, but rare in the South. It occurs in Chosen without being very common; it is more common among the Japanese than among Koreans. Scarlet fever has spread steadily in Japan in recent years, but is of common occurrence only in the large towns.

Influenza Epidemic of 1918—The *Journal of the American Medical Association* (November 5, 12, 19, 1927) has been publishing a series of articles dealing with the influenza epidemic of 1918, by Professor Edwin O. Jordan. Professor Jordan, after discussing the incidence of influenza, deals in greater detail with some of the specific control methods employed throughout the world. Regarding isolation and quarantine he states:

> It is quite safe to assert that perfect isolation of an individual or group during an influenza epidemic constitutes a complete protection against the disease. Indeed, it is possible to go further and to maintain that where, as in most cases, it is not practicable to avoid outside human contact altogether, reduction of such contact to a necessary minimum confers some degree of protection, although naturally this is never absolute.

With regard to the closure of schools, Jordan concludes that in large communities little if anything is to be gained by such closure. In smaller towns and in rural sections where general group contacts are not very numerous, restrictive measures may possibly be of service in diminishing the spread of infection. He states with respect to the use of face masks:

> The conclusion seems warranted that those attending or examining influenza patients may obtain some measure of protection by wearing properly constructed face masks and eye goggles. On the other hand, the practical difficulties in the way of mask wearing by the general public seem insuperable and render this measure one for individual rather than general prophylaxis.

A rather complete resume of the use of vaccines for prophylactic purposes in civil and military life constitutes a portion of the third article:

> Protection against influenza by vaccine inoculation is evidently a broken reed on which to lean. It is not surprising that this is so, since the nature of the causal organism of influenza is still in question. It is disappointing that inoculation with *Bacterium pneumosintes* has not as yet given unmistakable evidence of protective effect; more experiments with this organism should be made. Whether any protection against complications and the secondary infections with pneumococci and other organisms that follow in the wake of influenza can be imparted is uncertain, but deserves further study. Finally, the fact that an attack of influenza confers no such definite and durable immunity as an attack of typhoid or smallpox makes all attempts at this time to produce immunity by inoculation seem distinctly unpromising.

LABORATORY

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PLATE counting of bacterial colonies in milk, water, ice cream, soft drinks and canned goods has long required an apparatus or method by which more accurate counts can be obtained. Observations from a dozen laboratories have pointed out as many different methods for making such counts.

Correlations of counts from the same plate, within the limits of personal error, could hardly be expected from such varied methods unless the colonies were large enough to be counted with the naked eye or with slight magnification.

Certain bacteriologists engaged in public health work, as well as those in the commercial field, have a tendency to overlook the smaller colonies sometimes present. This may be due to lack of proper equipment such as magnification and illumination. However, not to observe the so-called pin point, transparent and opalescent colonies is to overlook an undesirable condition of milk, water or food. There have been numerous isolations of pin point colonies which have proved to be streptococci, and these have been traced directly to the infected cow with mastitis.

REVIEW OF LITERATURE

Stewart (1906)[1] designed a counting chamber which has been extensively used throughout the country. This counter proved of great value in counting the larger colonies in the milk flora.

Buck and Swenarton (1924)[2] designed a counter with special attention to pin point colony counting. This counter had many advantages, as it provided a direct and indirect source of light upon the colonies, agar bubbles, and debris between which it is at times very hard to distinguish.

A recent article by A. C. Fay (1927)[3] points out the danger of pin point colonies being overlooked in plate counting, which tends to minimize the value of one of the most widely used procedures of milk control. Undesirable sanitary conditions of the milk due to their presence may also escape attention. He has covered the literature on this subject so thoroughly that repetition seems useless.

OBSERVATIONS

In 1923 the non-correlation of milk and ice cream counts was so marked that it caused no little concern in the laboratory. Counts and recounts were made with great variations. Recounts of the same plate by a number of different workers differed widely. The plates selected for these observations were those containing the smallest colonies, which were soon termed the common pin points.

The laboratory was then using for a colony counter the simple ruled plate (Jeffer) and a hand lens with no artificial light. Therefore on a bright, sunshiny day one counted more colonies than on a dark, cloudy one. Artificial light was then supplied with the development of the present counter.

DESCRIPTION

The counter is now supplied with artificial light from an elongated, 25-watt

ground glass bulb (represented by (J) in Figure I), which is incased in a ducoed metal frame. The case is so constructed that all outside light is excluded, and it is provided with two doors for this purpose. The tray holds, first, a dark blue glass plate (E). This permits indirect light rays to come from beneath, giving a translucent light which is much desired in counting transparent and opalescent colonies. Upon the blue plate is placed the ruled Jeffer plate (D), and then the protective glass plate (C). The latter plate provides a depth which enables one to see through the Petri dish before the lines of the Jeffer plate are reached, and should be replaced at intervals to avoid the accumulating scratches. Inside the casing, there are two rotating mirrors, (F) and (G), and also two stationary ones, (I) and (H). These provide the amount of uniform light desired both above and below the plates.

The entire counting field is visible (instead of only a portion), as the counter is equipped with a specially designed 3½ times lens, (A), as specified in *Standard Methods* of the American Public Health Association.

By reason of the brilliant illumination and special lens set in a stationary position, the operator can readily distinguish pin point, transparent and opalescent colonies, and will not confuse them with agar precipitates, bubbles, or debris.

The counting may be done with much greater speed, far more accurately, with less tedium and much less eye strain than with other counters.

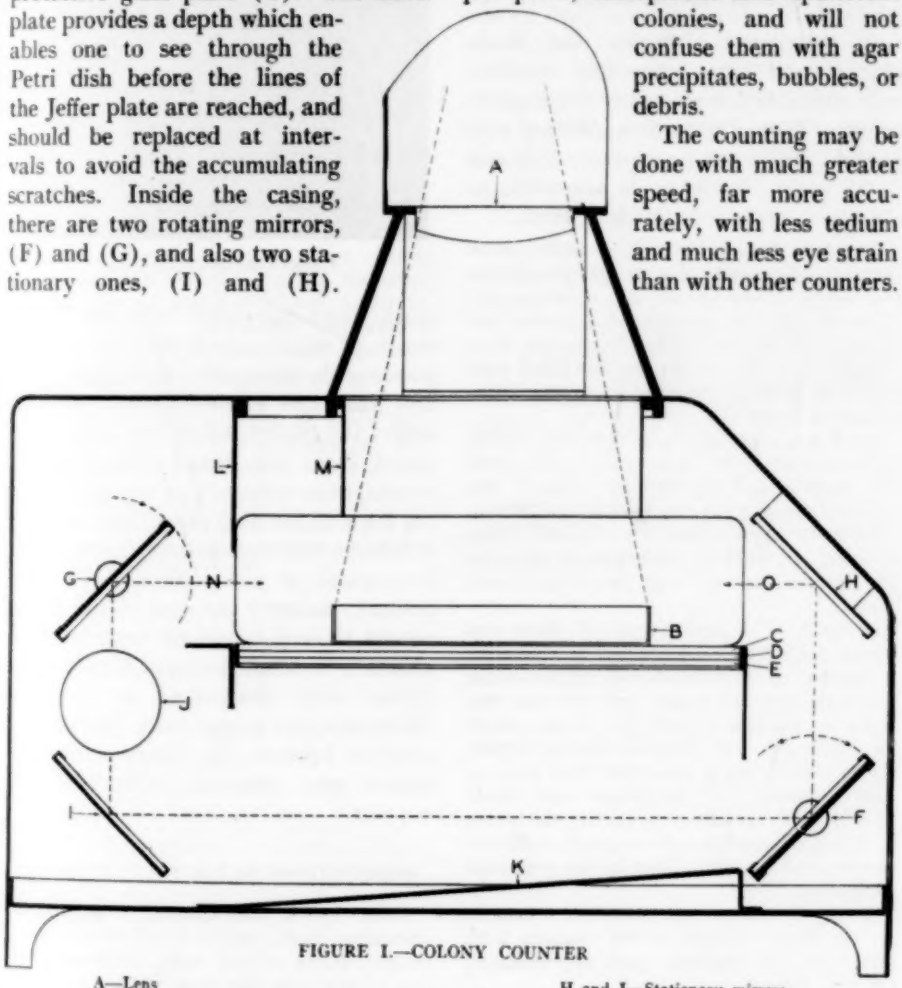


FIGURE I.—COLONY COUNTER

A—Lens
B—Petri dish in proper position with top removed
C—Protective glass plate
D—Jeffer plate
E—Dark blue glass plate
F and G—Rotating mirrors
H and I—Stationary mirrors
J—Elongated electric bulb.
K—Ducoed reflector
L and M—Light guards
N and O—Directed light rays

The plates to be counted are usually arranged on the left hand side. The top is removed; the plate is placed in the counter, and then counted. The top is then replaced on the right hand side. The Petri dishes are placed in a convenient pile or basket. Inverted plates placed in the counter are not desirable, as the scratches on the Petri dish will obliterate the small colonies and do not allow the proper magnification.

EXPERIMENTAL WORK

A comparison between the Buck counter and other prevailing counters was established from nearly 1,000 plate counts. These plates were selected and placed in three groups, namely, A, B and C, all counts being made according to *Standard Methods* of the A. P. H. A.

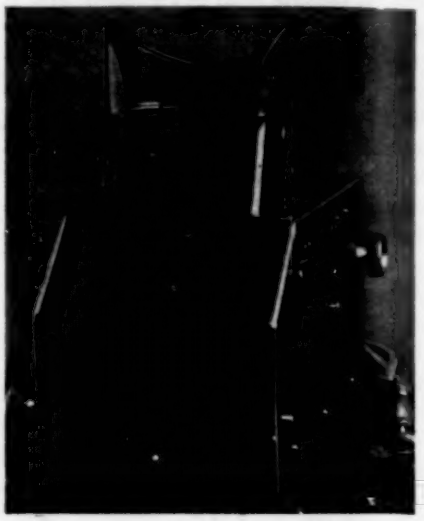
Group A—This consisted of about 360 plates containing pin point colonies, agar precipitates and debris. There existed no correlation between the different methods, this counter registering from 10 per cent to 250 per cent more colonies than the counts by the ruled glass hand lens method, the Stewart, or the Buck-Swenarton counter.

On several plates by three different workers there were declared no colonies by the hand lens method and the Stewart counter. The present counter registered from 60 to 240 colonies in the several plates. On recount of these plates by five different technicians, all using the new counter, a very high percentage correlated.

Group B—This consisted of 340 plates containing large and small colonies of opalescent or transparent colon bacilli and common udder cocci. Of the 340 counts, 60 per cent was higher by the new counter. On 30 per cent of the counts the other methods showed slightly higher counts, but it was found that they included quantities of precipitates and debris. This result was obtained by circling the colony or debris in question with a pencil, and their identity was then established by the compound microscope.

Group C—About 300 plates were selected for the larger colonies of the common lactic acid type. All methods gave approximately the same results.

From Groups B and C, about 100 Breed counts were made and compared to the results obtained by the Buck counter and the ruled glass and hand lens. The Buck counter showed that 86 per cent was nearer to the approximate plate count computed from the Breed count, of which only 6 per cent was approximately the same. The ruled glass and hand lens method gave 8 per cent nearer the approximate plate count computed from the Breed count. These counts were selected for comparison in the hope of securing something near the maximum differences occurring when the very small or pin point colonies were present. Seventy per cent of the Breed counts showed numerous cocci in short chains or in small groups of 4 to 10 cells. These were designated as probable thermotolerant streptococci. Better correlation between the Breed and plate counts was obtained with the new counter.



Colony Counter—Front View.

OBSERVATIONS OF PIN POINT COLONIES

Group I—Pin point colonies, or ones closely resembling them, may be found after repeated pasteurizations of raw milk. Sixty-one samples of raw milk that were selected were pasteurized at 63° C. for 30 minutes, cooled to 8° C., and held at this temperature from 12 to 14 hours. They were then repasteurized and cooled three times, plated and counted after

each cooling. Of the 61 samples 48 per cent produced these small or pin point like colonies usually after the third pasteurization.*

Group II—Fifteen samples of milk from cows suffering with mastitis were plated; 7 of these proved to contain typical pin point colonies. These were about 0.175 m.m. in the longest dimension. The Breed counts showed many short chain streptococci. Isolations and cultures of these were also typical of the streptococci group.

Group III—From more than 500 plate cultures 10 strains of these thermophilic colonies were successfully isolated. These colonies presented themselves in a ratio of 10 to 1 over the other groups. Ten strains were successfully isolated, 2 of which were traced directly to cows with mastitis. These colonies were much smaller than those of the other groups. The Breed counts were higher and these organisms resembled those of Group II. In some cases the chain-like formation was shorter, presenting small chains of from 8 to 10 cells. The plate counts from this group were found to correlate through the three dilutions, namely, 1 to 100, 1 to 1,000, and 1 to 10,000. The approximate plate counts ranged from 150,000 to 5,000,000. These colonies under the lower power microscope presented a small, round, irregular, somewhat transparent appearance, measuring about 140 m.m. in the longest dimension. They were non-motile, Gram positive cocci, somewhat smaller than the short-chained streptococci. Streaked on blood agar a very fine, transparent growth appears after 48 hours, and a slight laking of the red cells takes place. The thermal death range is somewhat above 80° C. for 10 minutes. They are heat resisting, hemolytic streptococci, and no doubt may be quite troublesome to both the dairies and health departments.

* These experiments were conducted on milk during the spring of the year from dairies troubled with pin point colonies, though none of these samples showed pin point colonies in the raw milk.

CONCLUSIONS

No. 1. The new counter which has been described provides for a more accurate count of bacteria by the plate count than with any other colony counter in general or accepted use.

No. 2. Pin point colonies are more readily detected and counted than when using other methods.

No. 3. The very minute, or pin point, colonies studied consisted of both the short and long chain types of streptococci which are associated with bovine mastitis.

No. 4. The method of lighting renders it easy to distinguish between fine colonies and bubbles, flakes, or other forms of debris.

No. 5. This counter provides excellent illumination, minimizes eye strain, and keeps the whole Jeffer plate under constant magnification.

REFERENCES

[1] Stewart. *J. M. Research*, Jan., 1906.
[2] Buck-Swenarton. *J. Lab. & Clin. Med.* 11:1095, 1925–26.
[3] Fay, A. C. *J. Bact.*, 13:347, 1927.

VITAL STATISTICS

LOUIS I. DUBLIN, PH.D.

Tuberculosis among Infants in New York City—Recent studies and observations indicate that many infants exposed to tuberculosis develop such a high resistance to the disease that the proportion of babies dying from it is very small in comparison with those infected. Only 1.3 per cent of infants attending baby health stations reacted positively to tuberculin tests, and among those attending clinics the percentage was 4.5. This total of 3 per cent of positive reactions in these two groups is probably a more correct estimate of the incidence of tuberculous infection among infants under 2 years in New York City than the 10 to 12 per cent estimate usually accepted.

The incidence of infection varies with age, reaching its maximum between 1 and 2 years. But the percentage of deaths among infants exposed before they are 12 months of age was 50 per cent, and only 26 per cent for those exposed between 1 and 2 years. The tuberculin reactions ranged from 11.4 to 12.7 for Negro, Jewish, American and Italian babies, while for the Irish it was as high as 15.6. Although the number of positive reactions among Jewish babies was about 1 per cent higher than for Negroes, only 1.2 per cent of deaths occurred among Jewish babies, while the percentage of deaths among Negroes, 5.9, was exceeded only by the Irish, with a percentage of 7.8.

When the later condition of 405 positive infants was studied, 209, or 51.7 per cent, were found to be dead. Tuberculosis was the cause of death in 57 per cent of these cases, broncho-pneumonia caused 14 per cent and marasmus another 14 per cent of these deaths. Forty-one per cent of those infected under 6 months were still living, 46 per cent of those infected between 6 and 12 months and 56 per cent of those infected between 12 and 24 months were also living.

No history of contact could be traced in 55 per cent of 341 infected infants but in 45 per cent it was definitely traced to tuberculosis in the family, lodgers, visiting friends or near neighbors. Of 149 infants thus exposed, 44 per cent were alive, while the majority of the deaths were due to tuberculosis. Of 187 with no history of contact, only 18 per cent were ill with tuberculosis, 82 per cent were infected but had no clinical manifestations, and only 33 per cent of the deaths were due to tuberculosis. Sixty-five per cent of 40 infants remaining at home in contact with diseased mothers died of tuberculosis while of 37 boarded out, only 2 per cent died of the disease.—M. Alice Asserson, *Am. Rev. Tuberc.*, 16:359–378 (Oct.), 1927.

Public Health in Switzerland, 1926—The federal service of public hygiene reports a large decrease in the number of cases of diphtheria, from 7,702 in 1920 to 2,617 in 1925 and 1,930 in 1926. The epidemic of smallpox, which began in 1921 and lasted about 5 years, was without a parallel in the history of smallpox in Switzerland since Jenner's discovery. In spite of the opposition to vaccination in certain parts of the country, measures were adopted which resulted in the vaccination of the majority of the population. Epidemic encephalitis and cerebrospinal meningitis were less prevalent in 1926. Puerperal fever also decreased from 30 cases in 1925 to 26 in 1926.

The number of cases of measles has increased, and in some localities the disease appears to have assumed a severer character than in former years. Scarlet fever increased from 1,980 cases in 1925 to 2,387 in 1926, especially in Berne where there were 757 cases. Poliomyelitis increased slightly from 93 cases in 1925 to 96 in 1926. An epidemic of typhoid fever in an insane hospital caused an increase from 259 cases in 1924 and 300 in 1925 to 328 in 1926. The number of cases of trachoma increased to 21 in 1926 as compared with 16 in 1925. In most instances the patients were foreigners but the authorities are making vigorous attempts to control the disease.

Toward the end of 1926, Switzerland was invaded by an epidemic of influenza which lasted for 2 or 3 months, and caused much uneasiness. During the last 2 weeks of the year 15,013 cases were reported which probably represented only a portion of the actual number prevalent.—*J. A. M. A.* 89:1796 (Nov. 19), 1927.

Cancer in Mexico—At the present time cancer is only about one-half to two-thirds as common in Mexico as in the United States, but it seems to be slowly increasing. The death rate from cancer in the whole country, although not accurately calculated, probably ranges from about 50 to 60 per 100,000 population.

Cancer is relatively common in the large cities but does not seem to be as prevalent as in the large cities of this country. The cancer death rate in Mexico City from 1922 to 1925 was about 60 while in Guadalajara, the next largest city, it was only 16 per 100,000 population. This extremely low figure suggests that there must be inaccuracy in diagnosis or in the reporting of deaths by specific causes. Vera Cruz and Merida both had rates of approximately 80 in 1925. In Oaxaca the rate was 40 and in Salina Cruz from 40 to 50. In spite of deficiencies in reporting and inaccuracies in diagnosis, however, the conclusion is justified that cancer is relatively rare in both the native Indian and mixed-blood populations.

Cancer of the buccal cavity is more common among women than would be expected, possibly because of the great extent of the smoking habit among Mexican women. Cancers of the stomach, of relatively rare incidence, and of the liver are of about equal frequency in the sexes but cancer of the rectum and intestines is more common among women. There is a very high incidence of cancer of the female genital organs and especially of the cervix, probably because of the high fecundity of the Mexican women, but cancer of the breast is relatively infrequent. Cancer of the skin is found to an equal degree in both sexes. In general, cancer is decidedly more frequent among women than among men.

About 1 per cent of all deaths in Mexico were reported as due to cancer as compared with 5 to 10 per cent in most civilized communities. Cancer seems to occur at a relatively early period of life in Mexico, for the average age at death from cancer for both sexes was 49.8 years, or 52.9 for males and 48.7 for females in the Mexican City Hospital. The average age at death for cancer of the female genital organs was 46.6 years, and 48.9 for cancer of the breast. For both sexes combined the average age at death from cancer of the buccal cavity was 59.4 years, for cancer of the stomach and liver 54.8, for cancer of the rectum and intestines 49.9 years and 48.9 years for cancer of the skin.—Frederick L. Hoffman, *Prudential Press*, Apr. 14, 1927.

Negro Mortality in Chicago—Although Chicago in 1925 had the lowest death rate of any city of more than one million population, only Bombay and Calcutta had a higher rate than that of the negroes in Chicago. The negro death

rate of 22.5 was more than twice that of the white, and the infant mortality rate was 119 as compared with 71 for the white. The negro stillbirth rate was more than twice as great, the death rate from tuberculosis and syphilis was nearly six times as great, and from pneumonia more than three times as large as the white rates.

The death rate from pulmonary tuberculosis among negroes declined considerably between 1918 and 1921 but it has increased steadily since 1921, partly because of the large influx of negroes from the southern rural areas. The death rate from puerperal causes in 1925 was 21.8, more than twice the white rate of 9.4.

The 1920 census showed that 34.9 per cent of negro married women are gainfully employed, but there are only 4 colored day nurseries with provisions for 91 children in the whole South Side. More than one-third of the hospitals throughout the city have some restrictions on the admission of negro patients and there are very few clinics, dispensaries and infant welfare stations in the colored sections. The negroes like the Mexicans, who also have high death rates, live in the most outworn houses in the city and pay higher rents than any other class in the community. Eighty-five per cent of the negroes live in "cold water" apartments with only stoves for heat, and one-third have no toilets in their apartments.—H. L. Harris, Jr., *Social Serv. Rev.*, 1:58–77 (Mar.), 1927.

Cancer in Massachusetts—In 1920–1923 the cancer death rate in Massachusetts, adjusted for age and sex distribution, was the highest of any state in the Union. New York, Rhode Island and Connecticut, all with a high concentration of urban population and many foreign born inhabitants, ranked next in order. A comparison of the adjusted death rates in communities of different densities showed a steady increase from 86.3 in communities with a density of less than 50, to 131.4 in communities with more than 3,000 persons per square mile. This apparent relation between increasing death rates and greater densities, however, is not found among the native born of native parents, and seems to be due to the fact that the percentage of foreign born population increases steadily with the density. The foreign born is an older group than the others and most individuals born in foreign countries have a high death rate from cancer, varying from 84 for those born in Italy to 323 for those from Ireland in Massachusetts 1921–1925.

A small part of the relation between high death rate and greater density may also be due to the fact that there is more accurate diagnosis of cancer in the cities because of better diagnostic facilities.—Herbert L. Lombard and Carl R. Doering. *Proc. Nat. Acad. Sci.*, 13:728–735 (Oct.), 1927.

The After-History of Sanatorium-Treated Patients—The after-history of 384 patients treated in the last half of 1922 in the King George V Sanatorium was traced as far as possible in 1926. Only cases in which the diagnosis of pulmonary tuberculosis was confirmed were included. This study seems to indicate that the age of the patients, records of temperatures and hemorrhages had little value in giving the prognosis of any case of pulmonary tuberculosis.

In 1914 and 1915, 70 per cent of all cases treated in sanatoria were dead within 4 years but only 35 per cent of the 384 patients studied in 1926 had died in the same period. Twenty per cent of them were either doing or were capable of doing full or ordinary work, 9 per cent were in some new occupation, usually a lighter or more suitable one, 24 per cent were unfit to work, 4 per cent were undergoing further institutional treatment and 7 per cent were untraced. Among the 48 cases discharged as quies-

cent 8 per cent had died and 58 per cent were at work of some kind, 32 per cent of the 148 discharged as much improved were dead and only 28 per cent at work, 24 per cent of the 116 early cases discharged as much improved had died and 30 per cent were working, 64 per cent of the late cases discharged as much improved had died and only 19 per cent were able to work. Twenty-one per cent of the 103 cases discharged as fit for full work were dead, 29 per cent at full or ordinary work, and 15 per cent doing lighter work, of the 11.8 discharged as fit for light work, 36 per cent were dead, 16 per cent doing full or ordinary work, and 8 per cent at more suitable work, 62 per cent of the 99 discharged as unfit for work were dead, 9 were doing full work, and 1 per cent were at more suitable work.

The percentage of deaths varied from 42 per cent of the patients between 16 and 25, to 40 per cent of those over 25 and under 40, and 35 per cent of those over 40. In the first age period 25 per cent were at work of some kind, 28 per cent of the second age group and 25 per cent of the third age group were at work. —C. O. S. Blyth Brooke. *Med. Off.*, 38: 163–165 (Oct. 8), 1927.

The Incidence of Infectious Diseases in Italy in 1926—The *Bollettino delle malattie infettive* contains the official report for the year 1926 on the incidence of infectious diseases, in comparison with the previous year. Almost all infectious diseases show a decrease in the number of cases, over that of 1925. The exceptions are influenza, typhoid and paratyphoid, and pertussis. The principal figures are as follows: measles, 98,155 cases in 1926, as against 164,485 in 1925; scarlet fever, 16,062 cases in 1926 and 16,733 in 1925; typhoid, 35,649 cases in 1926 and 24,264 in 1925; paratyphoid infections, 6,711 cases as against 5,036; influenza, 184,499 cases in 1926 and 64,736 in 1925; diphtheria, 14,923 cases in 1926, as compared with 15,383 in 1925; pertussis, 31,282 cases in contrast with 23,756 for the previous year; epidemic encephalitis, 450, as against 681, and malaria, 220,602 in 1926 and 283,109 in 1925. There were, in addition in 1926, 34 cases of exanthematic typhus, 31 of which developed in Naples, being due to imported food products. There were no cases reported of Asiatic cholera, plague or yellow fever.—*J. A. M. A.* 89:1797 (Nov. 19), 1927.

Heart Disease in the South—The relatively low incidence of acute rheumatic fever and chorea and the large negro population in the South give a different aspect to the problem from that of the East and the North. The study of 915 patients with heart disease in Galveston, Tex., shows that the incidence of heart disease in negroes is 1.8 times as great as in the white race. Impairment of renal function occurred in one-third of all the cases of heart disease.

Of the 915 patents, 47.7 per cent were hypertensive, 19.3 per cent syphilitic, 13.7 per cent arterio-sclerotic, 7.3 per cent rheumatic, 2.3 per cent had angina pectoris, 1.5 per cent showed subacute bacterial endocarditis, 1.3 per cent were thyrotoxic, 0.7 per cent had congenital heart disease.—Charles T. Stone and Francis R. Vanzant. *J. A. M. A.*, 89: 1473–1477 (Oct. 29), 1927.

PUBLIC HEALTH ENGINEERING

ARTHUR P. MILLER, C.E.

BOARD OF PUBLIC HEALTH ENGINEERS OF OHIO RIVER BASIN

W. L. STEVENSON, FELLOW A. P. H. A.

Chief Engineer, State Department of Health, Harrisburg, Pa.

WHAT is believed to be the first "de-facto" river board in the United States was created by a formal action of the commissioners of the health departments of the States of Pennsylvania, Ohio, West Virginia, Kentucky, New York, Maryland, Indiana, Illinois and Tennessee, at a meeting which they held in Cincinnati on October 18, 1927.

In 1924, the health departments of Pennsylvania, Ohio and West Virginia, entered into an Inter-State Stream Conservation Agreement, which provided for coöperation between these departments for the abatement of pollution in one state harmful to public interests in the adjacent or downstream state.

Under this agreement the Health Departments of Ohio and West Virginia caused to be brought about at by-product coke ovens within their jurisdiction, the installation of works to prevent discharge of phenolic substances affecting water works intakes in Pennsylvania on the Beaver and Monongahela Rivers, which resulted in relief from offensive tastes and odors in those water supplies.

Prior to the making of this agreement, such steps had already been taken by the Pennsylvania by-product coke ovens on the watershed of the Ohio River, with one exception, and through efforts of the Pennsylvania Department of Health, works are about to be installed at that one remaining plant.

Later the Kentucky Department of Health became a supplemental party to this inter-state agreement because of its evident benefits, as did subsequently, the remaining states as above enumerated.

The commissioners of health, parties to this agreement, in the latter part of 1926, appointed their chief engineers to constitute a board charged with the duty of recommending to the commissioners, policies and *modus operandi* to render the agreement effective.

At the meeting of the commissioners in Cincinnati they adopted the following resolution:

WHEREAS, it is necessary to adopt certain policies and procedures in order effectively and efficiently to carry out the letter and the spirit of coöperation and conscience upon which the Ohio River Interstate Stream Conservation Agreement is founded, therefore be it

RESOLVED, that the following policies and procedures be adopted as part of the said agreement.

1. The chief engineers of the Departments of Health, signators to the Ohio River Interstate Stream Conservation Agreement, shall constitute the "Board of Public Health Engineers of Ohio River Basin" hereinafter referred to as the board.
2. The board shall meet at least annually, during the first week of December and shall recommend, from time to time as may be deemed necessary, to the health commissioners, signators to the agreement, ways and means for effectively and efficiently carrying out the letter and the spirit of the agreement.
3. As adequate protection of public water supplies from damage caused by phenol and other tarry acids discharged into the source

of such supplies requires substantially complete and continuous elimination of the discharge of wastes containing such constituents, or substantially complete and continuous removal of such constituents prior to discharge, therefore the signators of the agreement should institute action promptly to require such elimination or removal by suitable treatment prior to discharge.

4. The signators to the agreement will notify promptly downstream or adjacent signators of unusual events affecting the Ohio River or its tributaries, such as phenol spills, typhoid fever epidemics, etc., in order that suitable measures may be taken by such downstream or adjacent signators to the agreement as are needful to protect the public health.
5. The signators to the agreement, in matters relevant thereto will coördinate present and proposed research, exchange data derived therefrom and exchange ideas on administrative policies for mutual benefit.
6. The signators to the agreement will furnish to downstream or adjacent signators data concerning discharge of sewage or industrial wastes or the treament thereof in cases where such matters might prejudicially affect such signators in order to obtain thereby the views and judgment of such downstream or adjacent signators.
7. Any signator to the agreement invoking the provisions thereof for abatement of alleged harmful pollution first shall establish the fact that the cause of the alleged harmful pollution does not exist within its own jurisdiction but does exist within the jurisdiction of the upstream or adjacent state.
8. The signators to the agreement in matters involving mutual concern will arrange for joint inspections of water works, alleged pollution of interstate streams, the alleged effects thereof, the stream involved therein, proposed remedies, and reports thereon whenever deemed necessary.

The commissioners of health parties to the agreement are as follows: Theodore B. Appel, M.D., Secretary of Health, Pennsylvania; John E. Monger, M.D., Director of Health, Ohio; W. T. Henshaw, M.D., Commissioner of Health, West Virginia; A. T. McCormack, M.D., State Health Officer, Kentucky; Mathias Nicoll, Jr., M.D., Commissioner of Health, New York; John S. Fulton, M.D., Director of Health, Maryland; Isaac D. Rawlings, M. D., Director of Public Health, Illinois; Wm. F. King, M.D., State Health Commissioner, Indiana; E. L. Bishop, M.D., Commissioner of Health, Tennessee.

The members of the Board of Engineers are as follows: W. L. Stevenson, Chairman, Pennsylvania; F. H. Waring, Secretary, Ohio; E. S. Tisdale, West Virginia; F. C. Dugan, Kentucky; C. A. Holmquist, New York; Abel Wolman, Maryland; H. F. Ferguson, Illinois; L. S. Finch, Indiana; H. R. Fullerton, Tennessee.

School Ventilation Laws—This very brief paper provides certain basic principles which the New York State Commission on Ventilation have formulated in response to requests for suggestions as to the matter which should be included in school ventilation laws. The requirements for heating and ventilation are essentially the following: (1) The provision of sufficient heating capacity to heat (a) corridors, gymnasiums and shops to 65°; (b) swimming pools and dressing rooms to 75°; (c) all other occupied rooms to 68°; (2) all classrooms shall have at least 15 sq. ft. of floor space per pupil and shall have a system of ventilation capable of avoiding the production of unpleasant odors usually associated with more than 15 parts of carbon dioxide per 10,000, and capable of functioning without producing chilling drafts. Such ventilation shall be accomplished by either window-gravity or mechanical means or by any other method which will attain the desired result. Ventilation of auditoria, chemical laboratories, shops, etc., shall be obtained preferably by mechanical means; (3) every schoolroom shall be provided with at least one thermometer; (4) an approved system of ventilation shall be maintained in operation whenever school is in session.—Thomas J. Duffield. *J. Am. Soc. Heat. & Vent. Engrs.*, 33:388 (June), 1927. Abstr. Leonard Greenburg.

Food Poisoning by Rats—The matter of food poisoning by rats is still an important problem. Meyer and Matsu-

mura of the California Hooper Foundation for Medical Research found approximately 8 per cent of the rats examined infected with one or two transmissible bacterial diseases, 2 per cent shedding virulent types capable of infecting food and further that 6 per cent near slaughterhouses and retail merchants could do this.

Feces were added to food of kittens and tame rats and four rat-borne diseases were produced—hemorrhagic septicemia, plague, rat typhoid and pseudotuberculosis. The first, being similar to plague, has complicated the campaigns against it, but now that the specific organism has been located and classified, the disease can be definitely diagnosed.

If conditions exist as these observers picture them, it is high time that a very definite program for eradication of the rat be instituted for there are worse conditions than these men found.—Anon. *Hygeia*, 5:14 (June), 1927. Abstr. H. D. Cashmore.

A New Means of Combating Anopheles in Italy: An Account of the Acclimatization and Progress of Gambusia—The author gives a review of the value of indigenous fish as eradicators of mosquito larvae and concludes: "For my part I am perfectly convinced that there do not exist any fishes of our own country (or probably in Southern Europe) which can be employed efficaciously in the antimalaria fight." Then reference is made to the arrival of "some hundreds" of gambusia in 1921 at Madrid, Spain, which had been shipped from the United States (U. S. Fisheries Station, Edenton). The fish were placed in a pond near Madrid and a year later this pond and the communicating streams were "crowded" with gambusia. Two or three hundred were then transferred to Italy, arriving in Rome in 1922. These fish were divided into four lots. They multiplied rapidly and the following April the effects became evident, for "the Lago di Porto which had been swarming with mosquito larvae in previous years, now only rarely presented a specimen."

Gambusia multiplied and invaded canals and other waters. It is reported that they have been liberally distributed over many parts of Italy, and they have been introduced from Italy, directly or indirectly, into Germany, Russia and Jugoslavia. The opinion is expressed that gambusia multiply more rapidly in Italy than in the place of their origin, namely, the United States.

The author says, "After four and three years, respectively, from the time of importation of gambusia into Spain and into Italy we have to thank the United States for the precious gift which they have made us, the value of which we no longer doubt." The conclusions are that complete mosquito control is obtainable, if there is complete control of vegetation. Vertical vegetation leaves to gambusia the possibility of complete destruction. Horizontal vegetation often prevents complete control. The relative degree of control in the presence of such vegetation, however, depends on the number of fish present. In some extensive zones not a drop of petroleum has been used, yet, the mosquitoes have been reduced to a minimum this year (1925), something never before obtained.

A reduction in malaria incidence also is reported. The author concludes: "The results of this initial period warrant, therefore, the affirmation that in gambusia, Italy acquired a new means for the reduction of the larvae of the anopheles." Maximus Sells. *Rendu Du Premier Congres International Du Paludisme*, Rome, 1926. 16 pp. Abstr. S. F. Hildebrand.

Burning Gas from Imhoff Tanks at Decatur, Ill.—Due to the strength and high temperature of the Decatur sewage, bacterial decomposition and putrefaction take place rapidly in the

sewers and in the Imhoff tank, producing large quantities of odorous gases. A collecting arrangement has been provided by means of which about 100,000 cu. ft. of gas per day is now caught, having a heat value of 700 B.T.U. per cu. ft. By burning this gas, the odor nuisance about the treatment plant was immediately reduced. Details are given regarding the composition of the gas under different conditions. William D. Hatfield. *Water Works*, 66:99 (Mar.), 1927. Abstr. D. E. Kepner.

Disposal of Trade Sewage—The writer points out the importance of proper disposal of trade sewage, indicating that this phase of sanitation is becoming more and more necessary. One of the most serious problems in trade waste sewages is the nature and concentration of these wastes. Until recently little has been known of the various chemical and biological activities taking place in trade wastes, but more lately continued study of the different lines of this work has shown that each trade sewage presents an individual problem in itself.

Three general ways of handling trade sewage are: (1) By fine screening, followed by sufficient dilution to prevent undue stream pollution; (2) partial treatment to destroy acid forming bacteria or to so change the trade sewage as to make it equivalent to ordinary domestic sewage thereby permitting it to be run into the municipal sewer system; (3) complete treatment of trade sewage so that the effluent can be wasted into any stream or storm sewer.

The writer devotes some space to pointing out the fact that it is ill advised to force a part-time industry to spend so much on trade sewage treatment as to cause that industry to either abandon its work or to move to another locality.

Study of each particular problem will probably reveal methods of treating wastes which will be economically possible. For example, a particular sugar beet company experimented with trickling beds of stone for producing a stable effluent. One of the materials used in the beds was crushed granite, the cost for which for a complete plant would have been $90,000, and another material was cinders, the similar cost for which would have been only $20,000. If the cinders prove to be as satisfactory as granite and also answer the other requirements there will be saved, approximately, $70,000. C. H. Currie. *Munic. & County Eng.*, 72:249 (May), 1927.

A Texas Water Supply Enlargement Problem Involving a Dual Distribution System—The question of the advisability of distributing water to a community by a dual system may arise in certain parts of this country, particularly in the southwest where large quantities of water are used for irrigation purposes.

Wichita Falls, Tex., is cited as a city where the relative economy of dual systems will probably have to be considered seriously as the city grows. Lake Wichita, the source of the present water supply, could furnish a satisfactory soft water for domestic purposes in the future provided another source of supply, possibly Lake Kemp, which furnishes water which is saline and very hard, might be utilized for irrigation and fire fighting purposes.

The relative costs on single and dual systems are set forth in the article and following conclusions drawn: (1) Dual systems are more expensive in first cost and in operation than single systems due to duplication of pipe lines, services, pumping plant and accessories; (2) some unusual situation such as the inadequacy of a suitable water supply together with an unusually high cost for an additional supply or excess treatment costs must exist before a dual supply can be economical. N. T. Veatch, Jr. *Proc. Ninth Texas Water Works Short School,*

Jan. 24–29, 1927. Pp. 59–63. Abstr. E. S. Tisdale.

Recent Improvements and Criticisms of Imhoff Tanks—The upper part of the sedimentation chamber should be given the largest surface area because depths of over 6 feet cannot be included in the computation of the detention period. One hour detention period is enough, but longer periods may be desirable, especially when contact aerators will be provided for. The sludge digestion chamber should be as deep as possible but should have a minimum of water surface.

Gas traps should be built in all large Imhoff tank installations. The construction costs are very slight as the already present slant partition walls for the separation of the sedimentation chamber from the sludge digestion chamber serve as gas retainers. The amount of gas is about 8 litres per head per day which can be increased at higher temperature to threefold. Imhoff tanks whose septic chambers have become too small may be provided with secondary sludge digestion tanks into which the half-digested sludge can be pumped. In the meantime the sludge from the secondary tank is allowed to return into the Imhoff tank. In winter there is the additional advantage that the cold separate sludge digestion chamber is heated by the warm Imhoff sludge. Contact aerators (that is to say, submerged structures into which air is supplied from below), have to date proved themselves very economical. The disadvantages of Imhoff tanks as compared with the single story sludge digestion tanks are briefly as follows: Construction is deeper, foaming during the ripening period or later damages the stabilization, and it is impossible to artificially heat the septic chamber. Among the advantages are: the automatic continuous flow of sludge from sedimentation chambers, the even distribution of fresh sludge into septic chambers, the septic chambers are naturally kept warm by the flowing effluent, the installation of gas traps are cheaper owing to the presence of slanted partitions, the relatively small amount of CO_2 in the gas and the simplicity of operation. Karl Imhoff. *Proc. Ninth Texas Water Works Short School,* Jan. 24–29, 1927, pp. 369–371. Abstr. H. H. Rashid.

Bacterial Efficiency of Mechanical Gravity Filters—The investigation was carried on to determine the bacterial efficiency of filters independent of the other devices usually associated with this type of plant.

The plants studied comprised 14 Paterson gravity type filters, 4 Jewell gravity filters and 6 Mather and Platt type filters, all taking water from the Ganges within a distance of 15 miles. The only variable factor in so far as the raw water was concerned was the bacterial pollution. The water in every case, after a varying dosage of alum, was given a short period of sedimentation. The efficiency of the filters was determined by the *B. coli* removal. The investigation was continued through two years. The summary of results from each of the eight plants studied is given. In general 75 per cent of the samples showed a 90 per cent removal of *B. coli.*

The writer points out that, where chlorination is not depended upon, the preliminary treatment devices should be so designed as to allow for the water to be delivered to the filters with a bacterial content such as to permit the filters to deliver a uniformly satisfactory water. Rao Sahib V. Govinda Raju. *Indian J. M. Research,* 14:707 (Jan.), 1927. Abstr. R. E. Tarbett.

INDUSTRIAL HYGIENE

EMERY R. HAYHURST, M.D., AND LEONARD GREENBURG, PH.D.

The Psychoneurotic Worker—It is quite common that when one undertakes a research for some definite purpose the by-products of this research are as valuable, if not more valuable, than the particular information anticipated. In a study of telegraphists' cramp, made under the auspices of the Industrial Fatigue Research Board of Great Britain, the following claims of interest to industry were made. From an examination of 100 learners the investigators found that it was possible at the age of 16 to differentiate the psychoneurotic workers from the normal. They also found from studying additional groups of workers that approximately 20 per cent possessed personalities which are liable to "nervous breakdown"; and that certain occupations, one of which is telegraphy, tend more than other occupations to help make for an increase of symptoms.—May Smith and Eric Farmer, A Study of Telegraphists' Cramp, *Report No. 43*, Industrial Fatigue Research Board, London, 1927. *Human Factor*, 3:11 (July-Oct.), 1927.

Fifty Years of Legislation on Occupational Diseases in Switzerland—During the last forty or fifty years the principle of occupational risk has been successively adopted by the legislative systems of almost all countries. While this applies to accidents, in most countries no compensation is payable for industrial poisons or infections. The experience of Switzerland, the first country to adopt occupational disease legislation, now covers half a century. Its principle was first applied to the manufacture of matches with white phosphorus and the use of Jacquard looms with lead weights. An historical survey shows that the schedule method was early adopted, in 1901, 34 disease hazards being listed. In September, 1920, the list was extended to over 100 disease causes, principally poisonous substances. (The article discusses at some length the legal provisions adopted in regard to occupational diseases in Switzerland.)—Dr. Werner Lauber, *Internat. Labour Rev.*, 16:472–486 (Oct.), 1927.

Carbon Monoxide Tests in Commercial Garages and Automobile Repair Shops—The Sayers-Yant method of estimating very small quantities of carbon monoxide in the atmosphere was selected because:

It is the best combination of sensitivity, portability and time economy. It will give a distinctly positive test with concentrations as low as 1 part in 10,000; a brief case will hold the apparatus for taking twelve samples; and the analysis of the twelve samples can be completed in the laboratory with the help of an equilibrator in three or four hours.

The average of all carbon monoxide tests was 0.9 parts per 10,000, i.e., less than 1 part per 10,000. The average for repair shops was 1.1 parts per 10,000; for rooms in which small repairs were made incidental to the storage of automobiles, the average was 0.6 parts per 10,000; and in commercial garages storing 5 or more cars the average was 0.9 parts per 10,000.

It is clear that the average condition is not deplorable, although 1 part per 10,000 is just about the maximum that should be tolerated in a room where there is an eight-hour exposure to the gas.

Many of the garage proprietors reported that employes complained of headaches which they believed were caused by the gas; but there were only a few places where the condition became so pronounced that employes had to leave their work.

In almost every case where an excessive amount of carbon monoxide was found, there

was also a distinctly visible smoke cloud and also a strong odor noticeable upon first entering the room.

Mechanical ventilation was almost unknown in the shops covered—only one exhaust system in all of the 71 shops. Five had small propeller fans installed in windows. A few of the shops were equipped with flexible pipes which were slipped over the end of the exhaust pipe to conduct the noxious gases outside the building. This system gave good results when used but, of course, is not effective in large commercial garages where machines are in motion. Two illustrations and three tables accompany the article. —Carroll M. Salls, *Indust. Hyg. Bull.*, N. Y. State Dept. of Labor, 4, 5:17–20 (Nov.), 1927.

Tuberculosis in Relation to Housing and Industrial Conditions—Whether tuberculosis in the adult represents the awakening of an infection acquired during, but latent since, childhood, or a new infection, is under dispute. Sure and certain knowledge concerning tuberculosis is not extensive. It may be summed up in two statements:

1. Tuberculosis is an infection.
2. This infection is acquired during life.

In this country, during the war period, the rise in tuberculosis mortality was confined to the ages 15 to 30 years, was particularly investigated for women, and shown to be in direct proportion to the extent they were called upon to perform munition work. The evidence is conclusive that nutrition, or rather malnutrition, is a factor ruling mortality from the disease in early adult life. In spite of the fact that following the war inadequate housing was at its height, a decided fall in the mortality has occurred and the trend of the pre-war fall has been resumed. The fall, just as occurred in the 50 years or so previous to the war, was coincident with a rise in the value of real wages. Apparently unhygienic environment is of far less importance than malnutrition, so far as tuberculosis is concerned.

Heavy work on entering industry and low pay, which represents an inadequate dietary, predispose to the disease in early adult life. Industrial life for most females terminates with marriage, but for males it continues throughout life. Any difference, then, which exists between the mortality from tuberculosis of males in middle life and that of females, may reasonably be ascribed to industrial conditions. The difference is well known to be pronounced and to be far more pronounced in industrial districts than in rural areas. Today the stronghold of tuberculosis, when estimated by the mortality from phthisis at age periods per 1,000 living, is found among males of middle age in industrial districts; but mortality at this period of life may reasonably be held to represent the cumulative effect of industrial life as lived during the last 30 years. The effect of shorter hours of work, customary today, will only become manifest as years pass.

The factor of infection is found dominating the predisposing factors of malnutrition and wear-and-tear, which can only act by modifying the power of resistance to infection. The wear-and-tear factor—silicotic fibrosis—in the Rand Gold Mines is so specific and intense, that it might sociologically have been expected to dominate the infection factor; but it has been found absolutely necessary, in order to bring the occupational risk under control, to minimize and, if possible, eliminate tuberculosis infection from the industry. Through periodical reëxamination every 6 months of all European labor, excellent results are being obtained, and, when native labor is as strictly supervised as European, the industry will be freed from its scourge. *Control of an infectious disease can only be acquired by controlling exposure to infection.*

The conclusion presented is that *the amount of tuberculosis infection has*

been diminishing; it may still be ubiquitous, but it is less intensive. We must recognize the tubercle carrier, just as we do the typhoid carrier, and, although we adopt every means to maintain a stronger resistance, we must eliminate the infected from our factory industries and place them in industrial colonies.—Edgar L. Collis, *Med. Off.*, Aug. 6, 1927, pp. 59–61.

The Trend of Occupational Mortality in the United States—The compilation of mortality rates by industry is a difficult if not an impossible task, so far as American vital statistics are concerned. Dr. Pedley in this paper presents a consideration of the statistics of the City of New York for the year 1924 of the Metropolitan Life Insurance Company and of the United States Census Bureau, classified not according to occupation, but for occupied persons by various causes of death. Instead of attempting to arrive at mortality rates Dr. Pedley uses the proportionate mortality method for estimating the severity of the various diseases. That proportionate mortality data is open to certain criticisms and possesses certain fallacies is well known to statisticians, and Dr. Pedley is fully cognizant of the limitations of his data in this respect.

From this data it is obvious that tuberculosis is still excessive in industry as contrasted with the country as a whole, but cardiac diseases have deposed tuberculosis from its position of first prominence.

Dr. Pedley further points out the very interesting fact that the relative proportion of cancer among occupied persons is actually less than among unoccupied persons. It is true that this may in some measure be brought about by the listing on the death certificates. The increase in proportionate mortality from cancer among occupied persons from the year 1909 to 1923 is no greater than that among the general population.—Frank G. Pedley, *J. Indust. Hyg.*, 9, 11:475. (Nov.), 1927. L. G.

Report of a Case of Injury to the Skin and Eyes by Liquid Sulphur Dioxide—This brief paper presents the review of a case of a workman who, while attempting to open a valve on a tank containing sulphur dioxide broke the pipe leading to the tank, thereby permitting this substance to cover certain parts of his head and body. Very little injury was inflicted upon the parts of his body which were covered by clothing, but his eyes and face were rather severely injured. Considerable edema of the eyelids with blistering of the skin was present over most of the face. The cornea of the right eye was almost completely denuded of epithelium and there was marked conjunctival injection and chemosis present. Treatment consisted of boric acid wash, atropine and oil installations. After 5 weeks, vision in each eye was $\frac{20}{100}$ and after 4 months the vision was $\frac{20}{15}$. The author's observations in this case lead him to believe that the ill effects of exposure to liquid sulphur dioxide are due to a rapid freezing of the tissues and not to any escharotic action. —B. R. Kennon, *J. Inst. Hyg.*, 9, 11: 486. (Nov.), 1927. L. G.

Pulmonary Asbestosis in its Clinical Aspects—Sir Thomas Oliver points out that with two exceptions, so far as he is aware, there has not been anything written on the subject of pulmonary asbestosis in Great Britain. He therefore takes this opportunity to present the histories of two females whom he examined and found to be suffering from this disease. The first patient, age 48, was forced to give up work on account of increased physical debility and shortness of breath. Her lungs showed ab-

normal breathing sounds and the presence of moist, tinkling sounds suggestive of cavitation. The respiratory capacity was found to be 1 inch. The apex beat was felt external to the nipple, which finding, considered along with the marked accentuation of the second sound of the heart over the pulmonary artery suggests to Dr. Oliver that fibrotic changes have already taken place in the lung.

The second patient, age 39, an asbestos worker for 18 years, developed a cough and bronchial asthma, and finally stopped work because of the loss of considerable weight in the early months of a pregnancy. The cough persisted throughout this time, but the infant daughter who is now 14 months old was found to be healthy and well developed. There is a noticeable shortness of breath on slight exertion and the presence of morning cough with expectoration. The heart is normal, but the second sound over the pulmonary artery is distinctly accentuated and moist rales were found at the base of the lungs.

In both cases the sputum was found to be negative for tubercle bacillus. The disease resembles silicosis in pronounced shortness of breath on slight exertion and deficient respiratory capacity.—Sir Thomas Oliver. *J. Indust. Hyg.*, 9, 11: 483. (Nov.), 1927. L. G.

Mental Hygiene in Business—We all promptly recognize the following types of children: the bashful, recluse, sensitive little fellow; the boastful, bullying sort who makes life miserable for his playmates; the deceitful boy; the boy with the uncontrolled temper; the youngster who pulls the cat's tail when no one is looking; the misfit who seems to have the faculty of always doing the wrong thing and being more or less constantly in difficulties; and so we might continue with a great number of well recognized types of personalities. Too well we know these same children in later life.

These are problems in human behavior; they are personality problems; they are problems in the adaptation of the individual to his everyday environment; they are problems for mental hygiene.

We have no argument with the principles of physical hygiene which have contributed so much to the well-being and longevity of our generation; education, moderation, cleanliness, regularity are the cornerstones. The development of mental hygiene has proceeded quietly, logically and effectively until it has become an integral part of the fabric of our everyday educational, social, political and business life.

Is it not incumbent on the leaders of industry to acquaint themselves with and make use of the principles and practices of mental hygiene?—Abstract of remarks by Dr. Quinby before the Executive Committee of the Associated Industries of Massachusetts. *Industry*, XIX, 10 (May 7), 1927. (Quoted from *The Human Factor*, 3:11 (July-Oct.), 1927.

The Medical Inspection of Factories—Commenting upon the condensed report of the conference held at Düsseldorf in 1926, published by the International Labour Office, the *Medical Officer* says:

Sir Thomas Legge, who represented Great Britain, gave an excellent report of the state of medical inspection of factories in Britain, which has the oldest scheme in existence and which has not been altered materially since 1844. Sir Thomas sees the necessity for a revision, and briefly indicated along what lines he considers such reconstruction should proceed. We have elsewhere shown dissent from many of Sir Thomas's ideals, but here we are concerned not with details, but with the broad basis of factory medical inspection, about which there is no difference of opinion amongst experts, as is shown by the resolutions of the conference being carried unanimously.

These resolutions are as follows:

Principles which should govern the organization of medical factory inspection in all countries:

1. The broadest freedom of access to all

places where work is done. Freedom of investigation of all kinds: questioning, examination of the personnel, taking of samples, etc.

2. The privilege of free expression of opinion to responsible authorities without submission to the censorship of non-medical intermediary authorities.

3. Compulsory consultation of medical inspectors by all constituted authorities on all questions concerning the health of the worker as such.

ADMINISTRATIVE POSITION

1. It is desirable that medical inspectors form an organization independent of other similar administrative organizations.

2. Medical inspectors should exercise sufficient authority to ensure compliance with regulations affecting the health of the worker as such.

3. It is the duty of the medical inspector to make proposals for regulations specially connected with the personal hygiene of the worker as such directly, and not through any other official.

4. Rules should be drawn up for the coöperation of medical inspectors with other officials appointed to supervise industrial establishments of any kind.

5. This coöperation should be based on the fundamental principles of administrative equality of the different organizations taking part in factory inspection.

We draw attention to Nos. 1 and 3 of the administrative position. To make No. 3 effective, coöperation with general public health administration is essential, and this could not be done without some modification of No. 1. The main idea before the conference was to divorce medical from other inspectorial duties. Nothing, in our opinion, would render this more feasible and acceptable than transference of the medical inspectorate of factories from the Home Office to the Ministry of Health in this country and its inclusion in the general organization of the nation. Sir Thomas Legge suggests certain objections to this, but we submit that his objections result from a misconception, and that if ever we get down to consider the matter as a practical proposition, he will see his way to withdraw any opposition he may put forward.

The medical inspection of labour seems to us to resolve itself into three distinct but closely connected factors: that of the factory itself; that of the personal environment of the workers in the factory, and that of the outside environment and private hygiene of the worker. In the last category, it might be stated, as an example, that though bad housing conditions are always detrimental they cause far less serious trouble to agricultural labourers than they do to mill operatives. In fact, the inspection of factories and of factory workers as factories workers cannot well be separated from the general medical supervision of the workers as citizens, though it is undoubtedly a special department, requiring of its practitioners specialized training and experience.

The last passage of the report of Professor Holtzmann of Baden is noteworthy:

"Emphasis is to be laid on the importance of the medical inspector's duties as an instructor in the Technical High School. Young engineers, engaged in acquiring practical experience, are enabled in this way to obtain a knowledge of industrial hygiene necessary for their duties.

"The little brochure is replete with interesting observations and the whole forms a very good epitome of modern factory practice."—*Med. Off.*, Oct. 22, 1927, pp. 183–184.

FOOD, DRUGS AND NUTRITION

WALTER S. FRISBIE

Nutritive Properties of the Mung Bean—The mung bean, grown throughout southern Asia as well as other tropical countries, is the principal constituent, either dried or germinated, of chop suey, and preliminary experiments indicate that it can be grown in certain semiarid sections of the United States. The beans used in experimental feeding were the solid green seed which contained 23.31 per cent protein and 9.31 per cent moisture. The protein content was further studied showing the amino acids and their distribution.

On a ration containing 60 per cent of the bean, representing approximately 14 per cent protein supplemented by sodium chloride and calcium carbonate made up with dextrin to 100 parts, rats were enabled to grow to maturity and to reproduce young, many of which were weaned. The growth, however, is somewhat below normal and reproduction limited.

A second set of experiments was conducted using the optimum protein level to investigate the vitamin content of the seeds, and a third experiment was carried out to determine whether there was a deficiency other than that of sodium, calcium and chlorine. Vitamin A was found to be present in amounts necessary for normal growth, indicating the superiority of this bean in that respect to most seeds. Vitamin B is present in sufficient amounts when the bean composes 60 per cent of the ration. It was found that the addition of sodium, calcium and chlorine completed the mineral requirements. To determine the effect of cooking, beans were autoclaved at 15 pounds pressure for 1, 2 and 3 hours, then dried and fed, vitamin A being added in all cases. Heating for 1 hour indicated a slight improvement, but the seeds heated for 3 hours were decreased in nutritive value of the protein. It is concluded that the mung is a superior type of bean nutritively but not adequate as a sole source of protein.—V. G. Heller, *J. Biol. Chem.* 75:435 (Nov.), 1927.

Zinc and Normal Nutrition—Various plant and animal substances were examined to determine the zinc content corroborating the previously reported widespread presence of zinc. Feeding experiments were conducted on white mice, applying a standard basal diet for control. This basal diet was varied to exclude so far as possible zinc, and was later supplemented by known amounts of zinc, 0.02 mg. per mouse per day in one group, and 0.04 mg. per mouse per day in the second. In each case the zinc was added as a solution of the sulfate. Laboratory-bred mice, uniform in weight, were used for experiments and so far as possible comparison made within litters. Tables are given showing the rate of growth of the various groups over 20, 45- and 70-day periods after the mice had reached 10 gm. of body weight. It was found that there was a retardation of growth when the animals were fed on the zinc-low diet. The addition of 0.02 mg. zinc per mouse per day resulted in a stimulation in growth as compared with the zinc-low diet. With the larger amount, 0.04 mg. per mouse per day, the same stimulation and growth was not found, and there was more irregularity than in other groups. Comparing the zinc diet with the control diet, it was found that while there was some stimulation, it would not alone restore the food mixture to the level of the control.

In addition to the growth experiments, an examination was made of the zinc content of animals at various ages on the stock diet and of animals at the age of 70 days after reaching 10 gm. body weight, in the experimental diets. The analysis indicated that the animals on the zinc-low diet had a distinctly lower zinc content than those on the control diet. Animals fed 0.02 mg. per mouse per day showed a zinc content somewhat above the animals on the zinc-low diet. With the feeding of the larger amount of zinc, the amount retained was increased for the males, but not for the females. In both the zinc fed groups, the zinc content was comparable to that of the control and those on the stock diet. There is apparently no storage of zinc to any extent in the growing animals. It is concluded that while the addition of a small amount of zinc may cause a slight stimulation in growth, the addition of zinc alone to a food mixture low in the metal is not sufficient to equalize this diet to standard, probably due to the fact that the value of the zinc cannot be ascribed to the metal itself but that it is associated in function with other metals present in small amounts.—Rebecca B. Hubbell and Lafayette B. Mendel, *J. Biol. Chem.* 75:567 (Nov.), 1927.

Feeding Experiments With Plants at Different Stages of Development—III. Synthesis of Vitamin in Plants—In this continuation of the study previously noted (E. S. R. 53:766), ungerminated, germinated, and green corn were compared as to content of vitamin A by using an equal number of seeds instead of equal weights of the three materials. One group of five rats whose weight had become stationary on a diet deficient in vitamin A was given 6 seeds of ungerminated corn per rat per day in addition to the basal diet, another group of five received the equivalent of 6 seeds of germinated corn, and a third group the green seedlings. Within 81 days all of the rats in the first two groups had contracted xerophthalmia and eight had died, while all of the rats in the third group were in excellent condition and were gaining in weight. This is thought to indicate a synthesis of vitamin A during the development of the green color.—M. Karshan, F. Krasnow, and B. Harrow, *Soc. Exper. Biol. & Med. Proc.* 24: 765, 1927. Abstract, Exper. Sta. Rec., 57:789, (Dec.), 1927.

Food Poisoning—The Malcolm Morris Memorial Lecture was delivered by Dr. W. G. Savage who discussed the subject of food poisoning. The simplest type is that caused by the consumption of a definitely poisoned plant or animal such as, for example, mushrooms, or apples sprayed with arsenicals. In 1922, 200 people were poisoned by apples which had been cooked for hours in a zinc container. Another instance of poisoning was caused by the contamination of sage used for stuffing, with belladonna leaves. These outbreaks, however, represent a very small proportion of all poisoning, most of which is caused by bacteria. Dr. Savage pointed out that ptomaine poisoning is a misnomer. While chemists have been able to extract toxic ptomaines from decomposed material which caused violent symptoms when injected into animals, no poisoning of this type is traced to food which is not decomposed and at least three-fourths of the outbreaks in England are due to bacilli of the Salmonella group. This group multiplies rapidly in warm weather and does not as a rule cause visible changes in the food but produces very irritant toxins. A study has been made of 200 outbreaks to determine the varieties of food responsible for the ingestion of the Salmonella bacteria. It was found that 30 per cent were due to canned foods, 7 per cent to milk, 8 per cent to milk products (mostly ice cream and cheese), 27 per cent to made-up meats, 4 per cent to manipulated foods

like stuffed meat, 16 per cent to fresh meat, 4 per cent to fruit or vegetables, 3 per cent unclassified. Seventy-two per cent were traced to foods which had been handled in some way by man.

One outbreak in 1923, in which hundreds of people were sick and one died, was traced to ice cream having been cooled in a filthy place and sold through the streets in hand barrows. Some Salmonella bacilli were isolated from this ice cream. It was found the Salmonella toxin could be boiled for an hour or longer without destroying its toxicity. Botulism is somewhat infrequent in England. An outbreak occurred in 1922 caused by eating sandwiches containing wild duck paste. Salmonella bacilli are not normal to the human intestine but are found in diseased animals; it has been shown that botulism can arise from drinking the milk of diseased cows. Dr. Savage believes that the legislature has not provided for sufficient control over preparation and manufacture of made-up foods and believes there is urgent need for registration and licensing of premises where such processes are carried out, with periodic inspection and the power to close if necessary.—*Lancet*, 2:900 (Oct. 22), 1927.

Studies on the Effect of Abundant Cereal Intake—Feeding experiments on young albino rats have shown that when suitable supplementary foods are employed, whole grain cereals and at least one milled wheat breakfast food product when supplying as much as 84 per cent of the calories of the diet result in excellent growth, reproduction, lactation and general satisfactory physiological condition. Diets containing as much as 93 per cent whole grain calories approximate those of current normal standards, indicating that the limits of whole grain cereals in the diet are extremely liberal provided the diet is otherwise properly balanced. While the application of the results in rat feeding experiments to human nutrition should be made with reservation, the science of nutrition would not warrant the conclusion that the results as reported in this paper do not have a practical bearing on nutrition in man. It is the conclusion that this work demonstrates the feasibility of the inclusion of cereal in the dietary in much greater amounts than is now common in this part of the world.—George R. Cowgill, Margaret H. Jones, Robert A. Frisch and G. P. Jackson, *J. A. M. A.*, 89:1770 (Nov. 19), 1927.

Relative Nutritional Value of White and Brown Breads—Professor Friedberger of Berlin carried out experiments to determine the nutritive value of various kinds of bread, particularly white bread, compared with *schwarzbrot* (brown bread, rye bread). *"Klopferbrot"* (boxer bread) produced the greatest increase in weight of rats of the same weight and the same litter, and white bread the smallest increase. Comparing the inside of the loaf and the crust it was found that white bread crust caused loss in weight. It was found that zwieback was responsible for a constant loss in weight up to their relatively early death which was ascribed to the great heating and double baking. When the animals were fed *einback*, which is the loaf before subjecting to the second baking, slight increases in weight were found, confirming former experiments indicating the change in weight producing value of food due to heating and showing the great variation in the weight producing value of bread in common use. While, on the basis of analysis of the food stuffs, it would follow that white bread is the best utilized in human economy, there is some doubt as to whether this should be the criterion in judging quality in an article of diet, believing to the contrary that, from the standpoint of weight gains at least, bread from the whole grains are to be favored.—*J. A. M. A.* 89:1798 (Nov. 19), 1927.

Digestibility of Potatoes as Influenced by Methods of Preparation—A study was undertaken in order to determine whether or not fried foods are more indigestible than foods prepared in other ways in view of the universal application of frying in the preparation of food. Potatoes of the Early Ohio variety were used and kettle-rendered pure lard employed for frying. The potatoes were cut in uniform pieces and cooked by three methods—French fried, pan fried and boiled. The digestibility of these potatoes by different methods was determined in vitro, and studies were also made in the case of 2 dogs, 4 men and 1 woman of the time required for the emptying of the stomach of potatoes prepared by these methods. It was found that the starch of the potatoes fried in cold fat is more easily digested by pancreatic juice than boiled potatoes or hot fried potatoes. In the case of the dogs, boiled potatoes were emptied from the stomach more rapidly than fried potatoes, there being no appreciable difference in this case between French fried and pan fried. In 4 of 5 human subjects, potatoes were emptied from the stomach at the same rate whether boiled or fried. A delay in emptying was found, however, if the potatoes, after cooking take up excess fat or fat is added as gravy or butter. It was also found that the gastric motility is more susceptible to the inhibitory action of fats in some individuals than in others. The conclusion is reached that in an average normal individual, fried potatoes, unless steeped in fat, are no more likely to cause digestive disturbances than boiled potatoes. —Bessie Boggess and A. C. Ivy, *J. Home Econ.*, 19:496 (Sept.), 1927.

Serum Against Mushroom Poisoning—Fatal mushroom poisonings are due to the alkaloid phalline, muscarine being much less dangerous owing to its emetic action. Symptoms of phalline appear about 10 hours after ingestion of the poison when it attacks the blood and produces hemolysis. M. Dujarric de la Riviere, professor at the Pasteur Institute, has prepared a serum from the horse for treatment of mushroom poisoning. Hypodermic injections of this serum are highly prophylactic and of therapeutic value when applied to laboratory animals.

In one case of a family in which three had been poisoned simultaneously, the physician was able to secure but two ampules of the serum and administered these to the most seriously affected, while the third, who had not received the injection, died. The Congress of Hygiene passed a resolution recommending supplies of this serum be kept in hospitals and for the accommodation of physicians.—*J. A. M. A.* 89:1529 (Oct. 29), 1927.

CHILD HYGIENE

MERRILL E. CHAMPION, M.D.

Etiology of Respiratory Disease in the City and Country Schools of New York—Dr. Lincoln presents a study of school absences from respiratory infections. One hundred and thirty-two children, aged 3 to 12 years were studied. Stool examination, urinalysis and physical examination by the physician were made in each case. Chest roentgenograms were made in many instances.

Preventive measures were taken during the school years 1921 to 1924 inclusive and were very detailed. In spite of these measures the rate of absence due to respiratory diseases, colds, tonsillitis, grippe, influenza, etc., was not greatly reduced. This compares with the experience of other physicians. Age and season, as seen by the reports, were determining factors to some extent.

Following the apparent failure of this program an intensive study was made of the 1923–1924 period. One striking point came up: The children in two schoolrooms that were constantly reported to the physician's office as "too cold," showed a marked decrease in the rate of morbidity from colds. There was no correlation between the state of nutrition and the amount of respiratory disease. Conclusions are quoted in full:

1. A statistical study of absence from school due to respiratory diseases is presented.

2. Environmental factors in the classroom and home of each child, were studied, as well as the results of the physical examinations and a careful survey of his diet.

3. The only direct correlations obtained were between absences due to respiratory disease and the presence of abnormal conditions in the upper respiratory tract and between absences due to respiratory disease and the amount of carbohydrate in the daily diet of the child.—Edith M. Lincoln, M.D., *Am. J. Dis. Child.*, Sept., 1927.

Amalgamation of Child Welfare and School Medical Work—Amalgamation of school and preschool service has advantages and disadvantages. Dr. Clark discusses both but presents the desirability of such coöperation as practically inevitable in view of future development along lines of unification of public medical work in local affairs.

To his way of thinking "The completion of the supervision of child life in public medicine is the most pressing demand of our time"—the preschool age being "a vital one in preventive medicine."

He feels that school medical service should be transferred to the public health committees. It would then be looked upon "as a primary health service and would in no sense be in danger of relegation to a place of secondary importance."

Dr. Cassie deals wholly with "points of immediate practical importance," and feels that amalgamation is not desirable from the administrative side as it would constantly interrupt instruction of mothers in child care. This work is done by "infant visitors" who are "specialists among nurses" and if their work were to be combined with school nursing interruptions caused by "epidemics of infectious diseases, periodic school examinations, etc.," would be frequent. (This argument, by the way, is certainly well illustrated in much of our local nursing work in our own states. Also, the nurse's preference would, very humanly influence her work.)

Points in favor on the clinical side are summarized as follows:

1. A greater variety of work.

2. School work can be done in the morning when child welfare clinics are not so well attended.

3. In county areas a saving of time and travelling expenses can be obtained by careful organization.

4. Continuity of records.

—R. Veitch Clark and Ethel Cassie, M.D., *Pub. Health*—Sept., 1927.

Five-Year Infant Mortality Study in Buffalo, N. Y.—Dr. Hollingshead's report of the infant mortality in Buffalo covers the period 1922–1926.

In the preceding years, 1910 to 1921, the number of infant deaths under 1 year dropped from 165 to 94 per 1,000 live births, but in 1922 the rate went up again to 102 and this stimulated the interest of the city department of health which asked the Buffalo Foundation to make this study.

The data on birth and infant death records of the city for the 5 years have been studied by wards and special districts, by nationality of parents, by cause of death and age at death, by hospitals at which the births occurred, and by physicians in attendance.

The study by wards is a valuable method as by such means the city sections most needing attention are given close attention. In the eight wards the infant mortality rate ranged from 125 per 1,000 live births to 62. Resident and non-resident mothers were separately grouped—also mothers born in Italy, in Poland, in Buffalo, and in the United States outside of Buffalo.

With the Polish-born mothers the infant mortality was 122 per 1,000 live births. With the Italian-born mothers, it was 87, and with the American-born mothers 85.

An interesting point was the fact that 56 per cent of the deaths of babies of Buffalo-born mothers occurred under 2 months, while only 37 per cent of the babies of Polish-born mothers and only 31 per cent of the babies of Italian-born mothers occurred at this early age. The question arises how much of this might be due to lack of breast feeding on the part of the American-born mothers. The causes given were premature birth, injuries at birth, and "other conditions of very early infancy."

More babies died of respiratory diseases in the group of mothers born in Italy, while digestive diseases caused a higher proportion in the group of mothers born in Poland. Twelve per cent of deaths of infants of Buffalo-born mothers were reported caused by malformations as against 6 per cent among infants of the Polish-born mothers and 5 per cent among those of mothers born in Italy.

The negro mothers' babies showed an infant mortality of 120 per 1,000 live births.

Midwives attended 16 per cent of all births and lost 2 babies under 2 weeks of age for each 100 babies attended.

Thirty-three per cent of the babies were hospital born. Infant mortality rates in hospitals varied from 10.9 to 1.3. In all strictly maternity hospitals the infant mortality rates averaged below 4.5 per 100 deliveries.

Two groups of physicians were studied. The first group of 20 had an average infant mortality of 4.6 per 100 live births. The highest mortality was 8.6 babies under 2 weeks of age in each 100 births attended. The lowest figure was 1.5 per 100 live births. These physicians average 700 births each for the 5-year period.

The second group of 33 physicians had an average rate of 4.3 per 100 deliveries. This group averaged 290 births each for the 5-year period.—*Pub. Health Rep.*, Nov. 25, 1927.

The Toothbrush in Preventive and Curative Dentistry—One of the greatest achievements in the scope of preventive and curative dentistry—and the one most often neglected by the general practitioner—is the toothbrush.

Tooth brushing is an important factor in treatment, because it is the treatment that patients receive most frequently, approximately twice a day, while they visit the dentist once or twice a week

during active treatment and only once every month, two months, or sometimes six months to a year during passive treatment. It is of importance not only as a curative agent in removing disease but as a therapeutic agent in preventing disease.

Tooth brushing is necessary not only to cleanse the teeth, which I believe was formerly the primary function of the toothbrush, but also to stimulate the gum tissue and consequently the blood supply to the gingiva, the alveolar bone, the pericementum or peridental membrane and the tooth itself through the connection of the apical blood vessels with those of the gingival mucosa, the bone and the pericementum.

Quite often with proper brushing we see the tooth take on a luster. This is due to the removal of the mucous deposits, and mainly to the stimulation of the blood supply to that tooth indirectly. If the diet were such that the teeth and the peridontal tissue received the proper stimulation during mastication, causing the blood vessels to be compressed and dilated, this method of tooth brushing would not be necessary. Just as the muscles in our bodies aid the circulation of the blood by their contraction and relaxation—the contraction compressing the vessels driving the blood out into the veins and the relaxation allowing new blood to flow in—so do we, with the toothbrush, produce a like condition.

We know how good we feel after a work-out at the gymnasium, though this would not be necessary if we led the active lives of our ancestors. The gingival tissues of our ancestors did not need stimulation because it was produced by the diet, and since it is absent in our present mode of living, we must produce it artificially. The method has rightly been termed "physical culture for the gums."—Samuel Miller, D. D. S., *Dental Digest,* Dec., 1927.

COMMENT

With the increasing stress that is being laid upon tooth brushing as a means of keeping the gum tissue normal as well as a good health habit and an added factor in preventing tooth decay, school nurses, dental hygienists and other health workers might well improve on their present methods of teaching children to brush their teeth.

The old way of giving toothbrush drills with throat sticks, pencils or fingers on the outside of the face may be effective as a form of military drill but it has very little connection with what the child actually does when brushing his teeth at home. Learning to brush the teeth properly is a serious thing, especially at the age of 6 or 7. A few minutes of personal instruction with each child or to a group of three or four in a place properly equipped with a mirror, running water and a good tooth brush, followed by periodic inspection, with proper rewards to help this brushing to become a habit will accomplish more in a few minutes than toothbrush drills from kindergarten to high school.—Eleanor B. Gallinger, D.H.

PUBLIC HEALTH NURSING

MIRIAM AMES, R.N.

Canadian Red Cross Outpost—Rural hospitals are no longer an experiment in Canada. A thrilling glimpse is given us by S. Leslie Bell, R.N., of the kind of experiences met with by the public health nurses who have elected to do pioneer trail-blazing in the sections of the provinces remote from cities.

The establishment of Outpost Hospitals is part of the constructive work undertaken in the peace-time program of the Red Cross. There are three types:

1. The center of field nursing. The nurse works in the homes and schools of the district, but no provision is made for inpatients.
2. The rural Outposts with accommodation for one- or two-bed patients, but with field nursing as the chief work of the nurse.
3. The Outpost in a village or small town which functions as a small hospital.

A request for the establishment of an Outpost Hospital comes from a community where medical, nursing and hospital facilities are lacking. The need of the community is determined first by means of a thorough survey to ascertain present conditions and to determine what might be expected in the future. The community is asked to furnish the building and as much of the equipment as it can. Other agencies occasionally assist in meeting some of the expense, and the Provincial Division assumes a share of financial responsibility for an initial period, which differs according to the need of a particular locality. After the initial period, the service is continued but under a different plan. The Red Cross continues to operate, but the community guarantees to refund a percentage of the operating deficit. The community undertakes ultimate maintenance of the Outpost service as soon as it is able. No Red Cross Outpost or rural hospital is operated in any district unless an active branch of the Red Cross exists, or is established, to coöperate with the Divisional Office in operating the Outpost.

During the 7 years of Outpost activity, 32,219 patients have received treatment at or through these Red Cross Outposts.

The governments of the provinces in which Outposts are established recognize them as hospitals according to law, and the ordinary per diem allowance for patients is made. Thirty-nine Red Cross Outpost Hospitals are already operating throughout Canada, and there are requests for many others which could be established to advantage, provided the expense for establishment and upkeep could be met.

When the patient cannot go to the Outpost, the nurse goes to the patient. Where the physician is too far away to be available, the judgment of the nurse is called upon to an extraordinary extent. Last year, 3,088 patients received over 30,000 days of attention of the Red Cross nurses. Seven hundred and forty-three babies were born, most of whose mothers would have gone unattended. Both preventive and curative work are done.

The contribution which Canada is making to the cause of public health is far-reaching; not only has it benefited the Canadians, but other Red Cross societies have recognized the value of this plan and are establishing similar services.

NOTE: The plan for the establishment of rural hospitals by the Commonwealth Fund in the United States is comparable—the nuclei of our future public health nursing centers in rural communities.—S. Leslie Bell, R.N. *Am. J. Nursing*, Nov., 1927.

Learning By Suffering—A large medical school has decided that the theoretical study of diets and of diseases is

not enough. Just because a meal contains the proper number of calories, properly distributed among the dietary essentials, does not mean that such a meal will be palatable to the patient. Therefore, after the student plans the meals which he considers necessary, the dietician selects one "usually the most unpalatable and poorly balanced." The prospective physician then has to weigh out the food and eat the meal.—Learning by Suffering, Editorial, *J. A. M. A.*, Oct. 29, 1927.

First Periodic Health Examination—The City Club gave over four days of the week of November 14 to the work, and in that time examined 57 women. Of that number 56 had made the preliminary applications, sent in the required specimens for routine laboratory tests, and otherwise complied with the requirements. The 57th applicant made the journey from another state for the express purpose of having the examination. More than 50 women were turned away because the time allotted did not permit more examinations to be made.

It should be said in passing that one of the reasons that the carefully planned schedule worked so well was that not one of the women who had applied broke her appointment or was late. Truly a record of feminine achievement!

The examinations were conducted by young physicians under the direction of Dr. Roger I. Lee. A thorough physical examination was made, and for those who specified a preference a woman physician was assigned. Two volunteer nurses prepared patients, weighed, measured, took histories, and were ready for any additional service. Members of the committee, Dr. Mary R. Lakeman, Dr. Marion Coon and Dr. Susan Coffin, kept regular hours at the club each day, and were the connecting link between doctors and patients. One feature particularly appreciated by the doctors was that the telephone switchboard arranged a special service by which they were constantly in touch with their own offices.

Four rooms and two bathrooms on one floor in the club house at 5 Walnut Street were assigned to the work. A special table was provided in one of the bathrooms for gynecological examinations.

The results proved conclusively that the health examination was worth while. Proper health habits such as well balanced diets and sufficient rest were all that were needed in most cases to assure good health. However, in 3 cases serious conditions previously unknown and demanding immediate attention were discovered.

Dr. Lee plans to send a follow-up letter to every woman who was examined, explaining her condition and making his recommendations. It is hoped that Health Week will presently become a fixed period on the yearly calendar.

An account of the First Periodic Health Examination is given by Elizabeth Ellam, Publicity Director of the Women's City Club of Boston. This new activity sets an example that might well be followed by women's organizations with lasting benefit to themselves and their communities.

Advance in Flood Area—The old saying "no loss without some small gain" can be well applied to the Mississippi flood district. The gains as far as public health is concerned are indeed many. The prompt action of the Red Cross at the time of the flood, coöperating with national, state and local health agencies, demonstrated to hundreds of thousands the value of preventive medicine. Instead of disease following in the wake of the flood, the health conditions are better than they have been for years.

While the results of this unplanned, unexpected demonstration are still fresh in the mind, permanent health units are being formed by the U. S. Public Health Service and the Rockefeller Foundation, in coöperation with the state departments of health. To insure competent personnel for these health units, the

Rockefeller Foundation has opened a training center in Indianola, Miss. By September 5, 12 physicians, 10 nurses, and 19 sanitary officers had completed their training. On that date, there were still in training 11 physicians, 13 nurses, and 18 sanitary officers. Also applications for this course had been made by 5 physicians, 11 nurses and 1 sanitary officer.—Public Health Advanced Twelve Years in Flood Area, by William DeKleine, M.D. *Red Cross Courier,* Nov. 1, 1927.

Studies Children's Food Habits—Eating at the family table at too early an age, overweight during infancy, eating insufficient food, staying up too late at night and idiosyncrasies about eating were among the causes of malnutrition revealed by a study of 30 children reported by Dr. Louis W. Sauer in the *Journal of the American Medical Association.*

Bringing a child's weight up to normal results almost without exception in improvement in chronic ailments, Dr. Sauer said.

Good results in the treatment depend on removal of the underlying cause, cooperation on the part of the patient and the family, eating sufficient food of the proper kind and establishment of proper rest, exercise and play.—*Hygeia,* Nov.; 1927.

When Measles Threatens—A physician is often faced with the need for convalescent serum which he is not able to obtain. Parents are many times unwilling to have their children give blood for others outside the family. In family epidemics, the school child is usually the one who contracts the disease and exposes his smaller brothers and sisters, to whom measles may be fatal. ("More than 90 per cent of deaths from measles occur under the age of 5 years and 75 per cent under 2 years.")

It has been found in a series of 7 cases that blood taken from a school child sick with measles one or two days after the return to normal temperature and injected into the gluteal muscles of younger children five or six days after exposure resulted in 6 cases of modified measles. In one, measles did not occur.—Modified Measles, The Use of Convalescent Blood From A "Family Donor," by Roy P. Forbes, M.D., and Berryman Green, M. D. *J. A. M. A.,* Nov. 5, 1927.

Change in Personnel, Advisory Committee—At the 56th Annual Meeting of the A. P. H. A. in Cincinnati, October 17-21, the Public Health Nursing Section recommended to the Committee on Administrative Practice that a sub-committee on public health nursing be founded. This sub-committee will confer with the main committee in relation to its studies and findings and render such assistance as is necessary to the Committee on Administrative Practice.

It was voted that the committee to study and report on Advisory Committees for Official Public Health Nursing be continued with a change of personnel to study the urban rather than rural needs. This committee will consist of Clyde C. Slemmons, M.D., Henry F. Vaughan, D.P.H., Francis X. Mahoney, M.D., Mary Gardner, R.N., Cora Tempelton, R.N., Amelia Grant, R.N., Mrs. George Hunter, Mrs. C.-E. A. Winslow, Mrs. Frederick S. Roth and James A. Tobey, Dr.P.H.

The section voted to discontinue the Committee on Annual Reports since the subject of Annual Reports is being considered in relation to the entire study of Records.

EDUCATION AND PUBLICITY

EVART G. ROUTZAHN*

Health Education in Many Lands—Why do we need health education? What is health education? How is health education being done? Answers to such questions as these, with illuminating examples of the best practice in different countries, are given in the "Health Education Number" of *World's Health* (League of Red Cross Societies, 2, Avenue Velasquez, Paris. 20 cents.). Oct., 1927. There are many illustrations and 2 pages of colored reproductions of European posters on avoidable industrial accidents. We would like to fill this department for several issues with quotations from the contents which include a "Foreword" by Sir George Newman; "Popular Health Education," by Dr. Rene Sand, an interesting review of methods and materials; "How to Awaken a Health Intelligence," by Louis Forest; "Educational Aspects of the Health Demonstration," by J. A. Kingsbury; "Press Publicity," by Dr. Gordon Bates; "Health Education in the Home," by Hester Viney; "A School Health Education Programme," by D. J. Kelley; and book and article reviews. Many health workers will wish to secure copies. Order direct, or send 20 cents to the editor of this department before January 20.

Home-Made Bulletin Board Posters in Racine—Posters better than the average factory bulletin posters are produced as blueprints (11 by 14 inches) by the Racine Board of Health, adopting a suggestion of the Wisconsin Anti-Tuberculosis Association, as "a method of securing small quantities of attractive posters at low cost." Happily the health officer's wife, Florence Marvyne Bauer, is an artist who works for the department without charge. Says Dr. W. W. Bauer: "These posters are made on tracing paper in India ink. From this tracing we make 100 blueprints and two or three Van Dykes. The blueprints are distributed to 100 of our largest factories where they are placed on shop or employment office bulletin boards. For the Van Dykes we use a standing picture frame with a removable glass back instead of the usual board back, and by setting these in window sills where daylight is transmitted through them we have a most attractive reverse of the blueprint poster. The removable backs of the frames make the subjects easily interchangeable. The State Anti-Tuberculosis Association artist is furnishing us tuberculosis subjects and we are making our own posters on other health topics.

"Another application of this method is the use of Ozalid prints, a comparatively new process which produces a reddish brown positive print direct from the tracing. The Ozalid print is opaque to reflected light but translucent to transmitted light so that it may be used either as a transparency or a bulletin board poster. The cost of these prints exclusive of the drawings is 5 cents each for the 11 by 14 blueprints in quantities of 100. The Ozalid prints are 6 cents each, and the Van Dykes 12 cents. By using the Van Dykes as negatives we can get blue line or positive blueprints, and in this way can secure three varieties of posters and two varieties of transparencies from one original tracing. We are planning to add to our series a number of posters setting

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

forth various health ideas. By means of this inexpensive process we can have a variety of posters which are strictly our own, much greater than would be possible to health departments with small appropriations where the printing or lithographing process is employed.

"While the supply lasts, we will be glad to send samples upon request to responsible health organizations or workers." (A set of these posters were shown at Cincinnati, October 17–21.)

"He Means Well But . . ."—"Some well meant efforts which are bizarre and offend good taste may do harm rather than good. An atrocious poem, song or play, taught to children in behalf of dental health, may not hurt the child, although it represents a poor type of education, but it may disgust the teacher and others. There is also some question in my mind as to whether we are not laying too great stress on speaking campaigns in our efforts at education. Evangelistic methods may have served a good purpose in the past, but the public is getting rather fed up on after-dinner speeches, campaigns and special days."—Planning and Organizing a State Dental Program, by W. R. Davis. *Pub. Health*, Lansing, Aug., 1927.

DATES AHEAD

The Annual Motion Picture Conference, January 26–28, New York, N. Y., will include review meetings in projection rooms of film companies. Address: Better Films National Council, 70 Fifth Ave., New York, N. Y.

National Negro Health Week, announced for April 1–8, 1928, is an undertaking which deserves encouragement and help from health agencies. The local committees for Negro Health Week may be very glad to have the benefit of the wider experience of health workers in organizing their campaigns, especially if the helpers stay in the background. Some state health associations may serve as secretaries of state-wide celebrations. The program as outlined suggests far too many topics, but cooperating health agencies may lead local communities to select certain topics for concentrated effort. Various national agencies offer cooperation which is described in the manual to be issued by the U. S. Public Health Service, Washington, D. C., about the time this notice is published.

International Social Welfare Fortnight, Paris, July 2–13, 1928, offers international gatherings on housing and town planning, child welfare and social welfare, plus the International Exhibition of Housing and Social Progress (June 15–July 15), and the Royal Sanitary Congress and Exhibition (July 10–28), London. There is also the possibility of visiting the great museum on health at Dresden and the one in Munich. The two latter afford many ideas for making exhibits graphic and interesting. Requests for information about any of the above will be forwarded by Committee on Publicity Methods, 130 East 22d St., New York, N. Y.

February—1928

5–11. Boy Scout Anniversary Week—Address: Boy Scouts of America, 200 Fifth Ave., New York, N. Y.
11. Daniel Boone's Birthday
12. Lincoln's Birthday
Race Relations Sunday—Address: Federal Council of Churches, 105 East 22d St., New York, N. Y.
12–18. National Drama Week—Address: Drama League of America, 59 East Van Buren St., Chicago, Ill.
14. St. Valentine's Day
17. Founders' Day: National Congress of Parents and Teachers, Address: 1201–16th St., N. W., Washington, D. C.

21. 21st Anniversary Celebration: National Child Labor Committee—Address: 215 Fourth Ave., New York, N. Y.
22. George Washington's Birthday.

Nearly all of the above dates offer opportunities for coöperation, congratulation or utilization by health agencies of various types.

The National Academy of Visual Instruction will meet in Boston, Feb. 27–28, 1928. Address: J. V. Ankeney, secretary, State Dept. of Education, Charleston, W. Va.

TIMELY MATERIAL

"Avoid Colds," by W. W. Peter. *Cleanliness Journal,* 45 East 17th Street, New York, N. Y., Oct., 1927. *Free.* "Keep away from walking transmitters who broadcast disease germs."

"Dress According to the Weather." State Dept. of Health, Boston. Press release. Dec. 5, 1927.

"Carbon Monoxide Gas Kills Without Warning," with application to gas ranges and heaters in the home. *The Foreman,* Wausau, Wis. Nov., 1927. *Free.* "You cannot see it! You cannot smell it! You cannot taste it! You cannot feel it!"

Health as described, lauded or defined in ancient and modern literature—in "Health Quotations." *The Campaign,* Iowa Tuberculosis Assn., Frankel Bldg., Des Moines, Ia. June, 1927. 4 cents.

"Guide book for Better Homes Campaigns in Cities and Towns." 10 cents. "Guide book for Better Homes Campaigns in Rural Communities and Small Towns." 5 cents. Better Homes in America, 1653 Pennsylvania Ave., Washington, D. C.

The campaign handbooks mentioned here from time to time contain ideas for alert publicity workers, whether or not they participate in the respective efforts.

"A Daily Dozen." Press release. Oregon State Board of Health. April 19, 1927. Twelve health hints, most of them for daily application. Simple, practical, avoiding the suggestions frequently offered which many readers will not accept as being practicable or important.

TITLES

"It Hurts!" *Hygeia.* Dec., 1927. "The why and wherefore of pain."

"Measles, the Killer." N. M. Bureau of Health.

"A Vanishing Spook—Diphtheria." *Canadian Red Cross Junior,* Toronto, Can. Nov., 1927.

WORDS

Before you again write or speak the word "tubercular" ask for "Tuberculous or Tubercular," a folder by P. P. Jacobs. National Tuberculosis Assn., 370 Seventh Ave., New York, N. Y. *Free.*

TRAINING

Health workers in Iowa and nearby states interested in publicity may wish to attend one of the one- or two-day publicity schools to be conducted at various points in the state by Extension Service, Iowa State College. Address at Ames for details.

SLOGANS

"Cancer, Be Quick"—*Commonhealth,* Boston.

"Time, Tide and Cancer Wait for No Man"—*Commonhealth,* Boston.

POSTERS

A three-section poster bulletin board is offered at $3.00 by National Safety Council, 108 East Ohio St., Chicago. Space for one 17 by 23 inch, and two 9 by 12 inch posters. Intended primarily for safety and health posters in factories, but may have other uses. Illustrated description *free.*

Subscriptions to *The Poster,* the special authority on the subject, are offered among the prizes announced for a poster contest being conducted by the *North-*

western Health Journal, St. Paul, organ of the Minnesota Public Health Association. A series of articles on poster-making will appear in the *Journal,* which lists (Nov., 1927) selected sources of information and help—but fails to give prices except in one instance! Anyone wishing copies must write twice.

HOUSE ORGANS

Much health material is distributed through the Red Cross Junior magazines published in many countries. Examples are given in a review of the junior publications in Our Junior Magazines, by E. G. Keller. *World's Health,* Paris, June, 1927.

The *Health-O-Gram* is a weekly 1-page mimeographed bulletin started in June by the Newark Department of Health. The items are short paragraphs, some in telegraphic style which makes it easier to be concise. Dr. Craster writes: "It will be issued each week and our circulation is to be built up among local laymen, school teachers and such mediums of publicity as newspapers, magazines, etc. At present, we are only mimeographing 500 each week and have received requests from several citizens and a couple of magazines. The newspapers are quoting it, and I believe it will be used largely in the schools to which we already send daily contagious disease reports, thus eliminating any additional postage for the schools. The heading is a multigraph plate, so the only cost is the paper and a few minutes time each week." Dr. Craster may wish to experiment with colored paper, no two successive issues being alike.

The Listening Post, Penn. Dept. of Health, is now *Pennsylvania's Health.*

Sanidad de Cuba, Department of Health, Cuba, illustrated common fly dangers in its December and February issues.

Cleanliness Journal, Cleanliness Institute, 45 East 17th St., New York, N. Y. *Free.* "The material may be reprinted, with or without credit."

Dental News, 58 East Washington St., Chicago, Ill. "Official bulletin of the House of Delegates of the American Dental Association."

SCHOOLS AND CHILDREN

A new series of the two-page Health Calendar starts with October, 1927. "Please color me and hang me up where folks can see me." *Free* copy of Wisconsin Anti-Tuberculosis Assn., 558 Jefferson St., Milwaukee, Wis.

The use of a questionnaire among mothers to check the effectiveness of a school safety program is described in "Measuring the Results," by Florence Nelson. *Child Welfare Magazine.* Sept., 1927.

"How the Schools Promote Health"—a nine point summary. *Journal* of National Education Assn., Washington, D. C. Oct., 1927.

"Questions Prove Inadequacy of Health Instruction," by Laura Cairns. *Nation's Health,* June, 1927. How 46 high schools answered 47 questions, most of which could be given to other groups.

ERRORS AND OMISSIONS

The editor of this department very earnestly solicits corrections of errors of any nature.

Please tell of any omissions of desirable material, or the failure to give sufficient detail in any instance.

Reports of any difficulties in securing copies or in looking up references will be welcome.

Help to make this department both useful and usable, and aid to a better understanding of difficulties in getting all the information and help health workers wish to have.

LAW AND LEGISLATION

JAMES A. TOBEY, LL.B., DR.P.H.

The tumult and shouting begin—With the convening of the Seventieth Congress on December 5, the correlation of federal health activities is once more a national legislative issue. Mr. Parker was planning to reintroduce his bill in the same form in which it was before the last Congress. Submission to the procrastination and devastation of the Director of the Budget will not again be necessary, and further hearings may not be required. It is to be hoped that a favorable report can be secured in the near future from the Committee on Interstate and Foreign Commerce of the House and that the bill can go on the calendar and eventually be passed.

This measure is of importance and interest to sanitarians, but to most members of Congress it is only one of the nearly 20,000 bills with which they are deluged. A number of national problems of great significance are before this session of Congress and will have to receive prior attention. Thus, flood control, tax reduction, farm relief, and more battleships must be broached, discussed, and fought about, while in the Senate much time will undoubtedly be spent on the question of admitting two of their members-elect, who were a little too lavish in their expenditures in the primaries.

Such progress as there may be on bills of interest to sanitarians will, as usual, be reported in this department. On the first day of the session, more than 5000 bills were introduced. It will be a month before it can be ascertained which of these are concerned with national health.

Scheme No. 12—During the last half century or so, at least eleven proposals of major significance have been advanced for the centralization or coordination of the scattered health activities of our national government. These efforts have been listed by Professor Robert D. Leigh in his admirable book, *Federal Health Administration in the United States*, (page 498), as follows:

1. The Cox plan of 1872 for a bureau of health in the Interior Department.
2. The Bowditch plan of 1875 for a Cabinet department of health.
3. The National Board of Health, 1879–1883.
4. The Committee of One Hundred plan for a Cabinet department, 1906–1912.
5. Representative Mann's plan for a Health bureau in the Department of Commerce and Labor, 1910.
6. The Taft Commission on Economy and Efficiency proposal for an independent health service, 1910–1912.
7. The Smoot bills for a consolidated health unit under an assistant secretary of the treasury, 1912–1915.
8. The Harding-Sawyer-Kenyon proposal of a health unit as one of four main divisions in a department of public welfare, 1919–1921.
9. The plan of the Joint Committee on Reorganization for public health as one of three main divisions in a new department of public welfare as part of a general reorganization scheme, 1923–1925.
10. The plan of W. F. Willoughby for a department of public health as part of general reorganization, 1921–1923.
11. The plan embodied in the Parker bill (the author calls it the "Tobey proposal").

To these eleven serious attempts to make more effective our federal health activities, Professor Leigh adds a pro-

posal of his own. He suggests a new department of education and health. It would comprise the Public Health Service, Children's Bureau, St. Elizabeth's Hospital, and Bureau of Education. There would be an advisory health council and various interdepartmental boards. The divisions of the proposed department are completely set forth and details to or liaison with other federal bureaus, such as Indian office, Bureau of Mines, Women's Bureau, Bureau of Dairy Industry, etc., are provided. It is suggested that this new department also supervise the health activities of the District of Columbia.

This interesting proposal may be an ideal, but on account of many practical difficulties, political and administrative, it will be a long time before it receives serious attention.

Congressional matters to interest physicians—Although the American Medical Association has twice gone on record in favor of the principles of the Parker bill for federal health correlation, this measure is not included in a description in the A.M.A. *Bulletin* for November, 1927, of nine matters of interest to physicians which are likely to come before Congress.

The nine subjects said to be of importance to the medical profession, whose policies regarding them are expressed, include: (1) a proposed measure to insure notice to all interested parties of every regulation proposed by the Commissioner of Prohibition under the narcotic or prohibition laws; (2) a measure for the control of cosmetics in interstate and foreign commerce; (3) deduction by physicians from their income tax returns of traveling expenses incurred in attending professional meetings; (4) an amendment to the national prohibition law, allowing physicians to prescribe as much alcohol as the patient needs (therapeutically and not socially); (5) legislation to secure retirement privileges for disabled medical officers who served temporarily during the World War; (6) more hospitals for veterans for treatment whether incurred in line of duty or not; (7) a medical practice law for the District of Columbia; (8) further extension of the Maternity and Infancy Act; and (9) anti-vivisection legislation.

The American Medical Association is in favor of the first five measures and the seventh, if they are introduced; but it is opposed to the sixth, eighth, and ninth.

More Arguments Against the Sheppard-Towner Act—Some alleged administrative anomalies of the federal Maternity and Infancy act are pointed out by Dr. W. C. Woodward and J. W. Holloway, Jr., of the Bureau of Legal Medicine of the A.M.A. in the Association's *Bulletin* for November, 1927. They call attention to the fact that the term "infant" legally means any person under 21 years of age, but that, judging from the hearings on the bill before it was passed, the law was intended to embrace only infants under 1 year of age. Then they quote from the plans of 19 states, as approved under the law, which are concerned with older children. Too harsh criticism should not be directed against the federal officers who administer the law, the authors believe, but criticism should rather be directed against the uncertain terms of the act itself.

Reporting on suspicion upheld—The reporting of actual cases of disease to health officials has frequently been upheld by the courts. Requirements to this effect are proper, and physicians who make the reports in good faith are not liable for damages of any kind. Now comes the decision of a court which upholds the reporting of suspected cases of disease, even though an injury results. In this case, McGuire v. Amyx, 297 S.W. 968, decided by the Supreme Court of

Missouri, the facts seem to indicate that the physician made a mistake, but since he acted in good faith, as a reasonable and prudent man would do, there was no liability.

The facts were that a woman went to consult her physician about herself. She was accompanied by her 7-year-old daughter. While examining the mother, the physician noticed a rash on the child and concluded that it indicated or was suspicious of smallpox. He notified the health department and the child was taken in an ambulance to a quarantine hospital, where the chief diagnostician pronounced her as afflicted with smallpox. The child was not sick and during the 9 days she was confined to the hospital played in the yard and with the nurses. Six days after her discharge from the hospital she became sick and developed an unmistakable case of smallpox. The parent as next friend brought suit against the physician, the diagnostician, and the hospital superintendent for $30,000 damages. He failed to recover in the lower court and this decision was affirmed on appeal, 8 years after the episode occurred. The court stated:

> The public health is of the greatest concern to all. By law its keeping rests with the attending physicians, householders, and health officers. Public policy favors the discovery and confinement of persons afflicted with contagious diseases, and we think it not only the privilege, but the duty, of any citizen acting in good faith and on reasonable grounds to report all suspected cases, that examination may be made by experts and the public health thereby protected. We hold this may be done without being subjected to liability for damages.

Although stating no new proposition of law, this is an important decision on the liability of health officials and of physicians in connection with their public health responsibilities. Not only does it hold that a physician is not liable for a mistake in judgment in reporting a suspected case of communicable disease, but also that a health officer who examines a patient and quarantines him because he has reasonable grounds to believe that the safety of public health requires such action, cannot be held liable merely because it turned out that he was wrong. Even though the patient contracted smallpox as a result of the mistake, there is no liability so long as the health officer did not act wantonly or recklessly.

Whether or not there was actionable negligence in any such set of facts is, of course, a question for the jury to decide. In this case they found for the defendants and the court upheld the decision on points of law advanced against it on appeal.

Child Labor Day—The problem of child labor is not yet solved, according to the National Child Labor Committee, which has sent out an announcement of a Child Labor Day the last week-end of January. The committee says:

> Child Labor involves more than the mere question of the age at which a child should be allowed to go to work. It includes the prohibition of all work for children under 14, and of dangerous work for children under 16; it includes the establishment of an 8-hour day and the prohibition of night work for children under 16; and evidence that the child is strong enough for work.

In 14 states the law now carries an exemption which makes it legal for children under 14 to work in factories or canneries, at least out of school hours; in 11 states children are permitted to work 9 to 11 hours a day; in 17 a physician's certificate is not required of a child starting work; in 28 children of 14 may work around explosives; in 22 they may run elevators; in 17 they may oil and clean machinery in motion.

Chicago wins—The State of Wisconsin brought suit in the United States Supreme Court against the State of Illinois and the Sanitary District of Chicago in order to stop the diversion of the waters of Lake Michigan through the